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HOUSING ALBERTA'S SENIORS:
AN EXERCISE IN APPLIED DEMOGRAPHY

by

ALISON MAUREEN YACYSHYN



A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH IN
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DEPARTMENT OF SOCIOLOGY

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled HOUSING ALBERTA'S SENIORS: AN EXCERISE IN APPLIED DEMOGRAPHY submitted by ALISON MAUREEN YACYSHYN in partial fulfillment of the requirements for the degree of MASTER OF ARTS in DEMOGRAPHY.

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ABSTRACT

Housing of Alberta's seniors aged 55+ is addressed using applied demographic techniques of incorporating the 1991 and 1996 Public Use Microdata File from Statistics Canada, collective dwelling data and the use of a projected population model. The fields of demography, aging and housing are researched to address the multidisciplinary nature of elderly housing and the utility of the available data is assessed. Using applied demographic techniques the results of this thesis lead to an understanding of Alberta's aging population and a projection of future housing usage. The research also has social policy implications. As the projected housing data suggest that the majority of the elderly Albertans in 2016 will reside in single detached houses grants for home repair and the increasing provision of home care are relevant policy issues. The projected housing numbers address the expected needs of specified age groups across the later life course. As the population ages, the elderly housing situation in Alberta will be of great importance.

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1.0 **Introduction**

As the population ages, elderly housing becomes an important area of research for contemporary society. In order to address the future housing needs of an elderly population, housing expectancies can be calculated using age-specific housing rates. Through these calculations, the amount and types of elderly housing needed some time in the future for a specified population can be estimated. Although, the determination of elderly housing needs may focus on a specific locale such as the province of Alberta, the analysis is a multidisciplinary exercise, which addresses fields such as demography, aging and housing. Understanding the respective fields is fundamental for both producing and interpreting the results of the analysis. The use of applied demographic techniques produces results that will ultimately lead to a better understanding of our aging population and will be predictive of housing conditions in the future. These results are important to social policy issues such as the housing demand by the aged population according to specific age groups (55-64, 65-74, 75+) of Alberta in 2016.

1.1 **Specific Areas of the Research**

1.1.1 Demography

Demography is a specialization area within the discipline of Sociology. Demography is concerned with the description, analysis and understanding of population phenomena (Kpedekpo: 1982). The main factors of demography are mortality, fertility and migration of the population. Elderly housing relates to the areas of demography, as the number of births, deaths and migrants in-and-out of the population influence housing demand for the elderly. An increase in births results in larger numbers of individuals in the population and as these individuals age, elderly housing becomes a greater concern.

With a prolonged lifespan due to decreasing mortality rates, individuals live to older ages and housing conditions must adapt to the needs of the increasing number of aging individuals in various states of well-being. Immigration is also a factor represented by those individuals who move in-and -out of the population. The number of individuals of various ages, that may increase or decrease in part due to immigration, alters the housing needs in the receiving community. To address these concerns, one must not only understand the determining factors (mortality, fertility and migration), but must also obtain data that accurately reflects the older population.

Applied demography is the use of demographic data and techniques to address a specific research topic. Numerous definitions define the area of applied demography. Merrick (1986, 102) for example, notes that “the growing and diversified uses of demographic information in planning, evaluation, resource allocation, marketing decisions for business and public administration have helped create” the area of applied demography.

1.1.2 *Census data*

Data used in demographic analysis are obtained from censuses, registration of events (vital statistics) and surveys. The British North American Act of 1867 (Sections 8 and 51 of the Act) specified that Canada’s census must provide population counts to be used to establish the number of representatives that each province would send to the House of Commons. Under the Statistics Act of 1971 it became a statutory requirement to conduct a nationwide census every five years (Statistics Canada, 1995). It is evident that “in the past, the census played an exclusively administrative role: it gave the number

of citizens and households in a given territory, the total population of military age, etc. Our current periodic censuses still retain that role” (Pressat: 1972, 2).

Analysis of the collection of census data also reflects the historical timeframe when the questions were asked. “For example, in 1931 families were asked if they owned a radio, so as to accurately measure its use. This was necessary because there were no other surveys available to collect this information” (Statistics Canada, 1995). Similarly, questions regarding dwelling types have also adapted to include apartments and nursing homes for example, as these types of housing did not always exist in Canada. In other words, due to the collection of the census data, information very specific to the population may be obtained such as radios or types of housing. Furthermore, today numerous surveys exist which collect vast amounts of information even more specific than the census. Nevertheless, the census remains an important source of information and is utilized in diverse ways.

1.1.3 The Elderly

Demographic data may be used to focus on a particular group of individuals in the Canadian population such as the elderly. Population aging may be addressed as a primary function of birth and death rates, although migration can also have an effect (Northcott: 1997). Due to these demographic factors, the Canadian population is experiencing a process of population aging as measured by the senior’s percentage of the population. “Measuring population aging in terms of the proportion of the population over the age of 65 (or some other arbitrary age) is intended as a reflection of the process of aging in a population” (McDaniel: 1986, 10). Identifying relevant categories of the elderly population is important as research may focus on very specific groups. However, the

topic of analysis and the availability of data determine the choice of relevant categories of the elderly population. Research may focus on the elderly and near-elderly identified as those individuals in the population who are ages 55 and over or any other age group central to the general category of elderly.

1.1.4 Specific Geographic Area Focus

The analysis of demographic data for specific locales or geographic area, such as the province of Alberta, allows for analysis of a distinct group, such as seniors in that locale. While any city, town, province (or the entire country) could be analyzed, the province of Alberta, Canada has been chosen for analysis.

1.1.5 Housing

Housing is the specific focus of this research as it is a basic need for all, be it young or old. The attention of this research is directed specifically to seniors, and the near-elderly, that is the population over 55 years of age.

“Older persons place special importance on housing because they are likely to spend more time in it, have more difficulty taking care of it, find that its physical structure no longer meets their needs, and have social psychological attachments to it. But, compared with other areas such as income assistance and health care, housing has had a relatively low priority as a political issue for the elderly” (Pynoos, 1984: 173).

Research on elderly housing enables assessment of the current housing situation and plausible projections as to future scenarios that may emerge due to the population dynamics.

1.2 Background to the Research Topic

Numerous images of elderly life arise when an individual is asked a question such as: “what comes to mind when the words, elderly individual are mentioned?” By some, “the elderly are believed to be physically infirm, inactive, poor, asexual, irritable, lonely, isolated, obsolete, irrationally afraid of aging and death, set in their ways, and in need of institutionalization” (McPherson: 1998,11). Negative stereotypes lead one to believe that older persons are abandoned to lives of destitution in institutions due to the negligence of relatives; however, this generalization is not supported (Stone & Flethcer: 1980). The elderly are not a homogeneous group and instead of the image of institutionalization, the great majority of seniors live a life of independence in their own homes. Nevertheless, the likelihood of renting accommodations tends to increase with increasing age, as does the likelihood of institutionalization (Northcott: 1997).

If one were to analyze the individual housing situation in the city of Edmonton, one may observe a transition in housing as the owners themselves age. Situational circumstances are so diverse that the reasons for the housing transformations are numerous. Examples include: a spouse dies and the widow(er) continues to reside alone in the house; the couple or elderly individual moves to an apartment or condominium; the elderly individual or widow(er) moves into a senior’s lodge or nursing home; the couple continues to age and maintains their household (even though the children have grown up and moved out) or outside assistance is used to help the senior(s) stay in their own home; the couple or individual moves nearer or even into their child’s residence; or the child(ren) move back into the parents household to care for the aging parent. As one can

see, the permutations of elderly housing are numerous and the ranges of housing needs are diverse as well.

Demographic data exist for historical trend analysis due to Canada's (and other countries') legal obligation in collecting population statistics. Demographic research can also be broad or specific in relation to the topic. Recent publications: "Boom, Bust and Echo: how to profit from the coming demographic shift" (1996) written by David Foot with Daniel Stoffman and "Demography for Business Decision Making" written by Louis Pol and Richard Thomas (1992) use demography as a tool to guide marketing decisions. Demographic analysis in these two books is used as a formulation tool to predict future trends in extremely specific areas.

"Boom Bust and Echo" enlightens the reader with numerous examples of demographic usage. One example, is where the authors use the demographic composition of the Canadian population to suggest that "as the average age of the population increases, not only do quality and service assume ever greater importance, but product preferences change" (Foot & Stoffman: 1996, 81). The authors portray the behaviours of city dwellers as being age determined:

The 20-year old single person who lives downtown and rides the subway is not morally superior to the 40- year old parent who drives a car. The young person rides the subway because, living downtown, he doesn't need a car and, being young, he can't afford one. The parent on the other hand, needs to deliver her son to the hockey rink, her daughter to skating class, and the dog to the vet, and she'll pick up a few bags of groceries on the way back. Whether she lives in the inner city or the suburbs, she can't easily accomplish this trip by public transit. Twenty years in the future, the same young person who today happily zips around town by bike, bus, or subway will be at the wheel of a minivan or something similar, hauling kids, dog, and groceries. It won't happen because he has changed his views on urban planning. It will happen because he is 20 years older (p.129).

The use of life tables and population pyramids enables the demographer to determine the number of individuals that, at some specified time in the future, will be at the stage in life where a “minivan is necessary”, or, in which other typical life stage events may occur.

Louis Pol and Richard Thomas, use more advanced demographic in their book “Demography for Business Decision Making” and discuss how “the key to maximizing demographic data in business decision-making lies in linking demographic and nondemographic data” (p.167). The authors show both the generality and specificity of demographic data, for example:

the population of the Middle Atlantic census division of the United States, which is composed of New York, New Jersey, and Pennsylvania, contained 38.1 million persons in 1993 or 14.8 percent of the total U.S. population. These data could be further refined to include, for example, only persons 55 years old and over to reflect the size of the potential market for supplemental health insurance. Or one could focus on the population of households with children age ten and younger as an indication of the size of the child care market (p.175).

1.3 Purpose of the Research

The specific objective of this study is to utilize demographic techniques to obtain and analyze demographic data, i.e. age-data for elderly. As this topic is an exercise in applied demography, another purpose of the research is an assessment of the quality and quantity of the available demographic data.

Demography has multidisciplinary linkages. The capability to analyze a specific segment of the population (i.e., seniors) with regards to a dimension of that population (i.e., housing) is an application of demography. Other fields that can be identified as being related to this research question in some form are: gerontology, urban sociology,

public health, geography, business, medicine, epidemiology, sociology, human ecology, economics, Canadian studies, urban planning and health care policy.

Synthesizing the numerous dimensions would indeed allow for a comprehensive analysis of aging and seniors housing. While one could comprehensively address the multifaceted aspects of aging and seniors housing, the construction of such analysis would be overwhelming. Previous research by Statistics Canada and numerous other researchers have shown through demographic analysis that Canada, like other industrialized countries, is aging. Instead of attempting to amalgamate all possible frameworks, this research will incorporate only a few disciplines (demography, gerontology and urban sociology).

Policy is a dimension of demography that is said by some prominent demographers to be lacking (Ram, 11/20/1998). For demographic research to be used in policymaking, research that deals with specific topics is fundamental. Data that is specific to elderly housing in a specific locale can be used as an example of demographic usage in policymaking. Once the data is presented and understood, there is potential for policy ramifications for example, subsidies for elderly household maintainers to upgrade their single-detached houses. Those interested in the policy involving seniors would include elderly individuals and city planners. As well, demography students and demographers can benefit from such research, as it is an example of applied demographics in a specific area of Canada.

The possibilities of other applications of this study are numerous. Different provinces or other geographic areas could be analyzed and other segments of the

population such as cities, Census Metropolitan Areas or, specified neighbourhoods could be researched.

2.0 Literature Review

Literature that is relevant to the area of elderly housing can be categorized into numerous categories however, only three classifications will be used. The classifications of elderly housing under review in the present literature are housing, demography, and aging. These topic areas will be addressed independently, in accordance to the literature that exists with regards to the specific topic area.

2.1 Housing

The housing of the Canadian population is important as shelter is deemed a basic necessity of life. In fact, it has been stated that:

“every individual in society is faced at some time in his or her life with the prospect of selecting some form of housing to accommodate his personal living arrangement- whether in terms of living alone, or with a friend, or with spouse and children. Shifts in living arrangements of the population, often necessitated by restriction in housing choice and changes in housing technology, as well as changing social values, have produced new emphases in the quantity and form of shelter in today’s society” (Kalbach & McVey: 1979, 342).

The concept of housing is not only identified as a societal concern, as the previous quote identifies, but as an individualistic concern. Where individuals live, is an important issue to planners looking toward the future. As the individual ages, through out his or her life, he or she will likely experience varying housing needs. Focusing on the later stages of life, one may assume that specialized housing is the dominant form of housing for the elderly population, due to the consequences of old age. However, most elderly individuals tend to live in “normal housing” (Bond & Colman 1990; Driedger, 1991). The use of “normal housing” implies independence and in fact, many elderly remain in the

house that they have lived in for years for various reasons. Examples, which demonstrate why elderly homeowners are attached to their homes, include:

“the homeowner has many years of being emotionally attached to the dwelling. It is a symbol of a lifetimes hard work and last bastion of emotional security. Associations with the time of early marriage or raising of children may enhance its perceived value. Finally, how to adapt to accept its deficiencies, and understandably become reluctant to make a change, even if objectively it might be for the better” (Lawton; Hoover (ed.): 1981, 17).

Adapting to one’s environment is a sign of maintaining independence and retaining control over his or her life. The strong emotions an individual develops towards inanimate physical objects such as their home are characteristic of human beings and human nature. Although a house is a physical object, the saying “home is where the heart is,” identifies the unique connected-ness an individual acquires to their home after years of living in it.

Other reasons may influence the attachment level of the individual to their home.

These influences include:

“they may have familiar environment where they can demonstrate mastery, competence, and control; their homes enable them to demonstrate independence and enhance self-esteem; owning a home gives them status; the home is a repository of family memories and family history; it provides privacy; a local social support network (friends and neighbors) is available and the economic and psychological costs of moving are more threatening than discomfort or difficulties of the less-than-ideal present housing situation. In addition, homeowners have collected and maintained a number of personal objects or possessions that give deeper meaning to the physical environment” (McPherson: 1998, 275).

Life experiences are ever changing and individuals do not always remain in their house for years on end, even though they may desire to, as the “attachment theory” might suggest. In fact,

“the elderly housing needs are different in many ways from those of younger families. Depending on location of the housing, health status of the individual, availability of services, and access to the transportation, a house or apartment can unintentionally become a kind of prison” (Carlin & Mansberg: 1987, 5).

When housing becomes a negative consequence, such as imprisonment, changing to a more appropriate dwelling is a decision the elderly or their caregiver must be faced.

The type of housing that an individual requires has been identified as being a function of multiple causation. In fact:

“the kind of housing that an older person needs depend on their health, marital status, income, and lifestyle. A single-family house, for example demands good health, knowledge about home repairs, and enough income to pay for heat and taxes. An apartment demands less know-how and less worry about heating costs” (Novak: 1997, 220).

The advantages of apartment living may outweigh those of living in a single-detached house. Every housing structure has advantages and disadvantages that must be assessed by the individual.

“To match an individual with the most appropriate setting, one must first assess his capability: his adaptive skills, his physical capability, his personality lifestyle, and economic resources” (Gelwicks & Newcomer: 1972, 42).

Age and sex are not the only determinants that account for where an individual lives.

Even the economy a factor uncontrolled by the individual, has consequences with regard to their housing status.

Characteristics of the individual are just as important in determining dwelling type as non-individualistic factors.

“It must be continually recognized that there are individuals and cultural differences in the aging process, both within individuals and within cohorts. Individuals, cohorts, and societies do age differently. It is because of this interaction of individual differences and cross-cultural differences that the aging process is relatively difficult to understand” (McPherson: 1990, 13).

Aging issues may be complex in nature due to so many influential factors but demography allows for analysis of specific individuals of certain age groups within the population.

As previously noted, demographic variables such as age and sex are factors influencing where an individual lives. The importance of these variables has been argued in the literature.

“The strong association between householders’ ages and their housing nevertheless has little direct explanatory power. First, age is important for housing primarily through its varying relationships with the family, employment, income, wealth, and other characteristics which directly affect housing demand. Second, cross-sectional differences in the housing of age groups confounds possible accommodation changes because people have grown older with the period of history in which they entered housing markets. Rather than being used as a crude explanatory variable in itself, age is most appropriately viewed as a basis for charting the timing of key life events and the period of history in which these events take place” (Myers 1990, 135).

Statistics Canada and numerous other individual researchers have used population pyramids to graphically portray the basic population structure, according to age and sex of the population. Some researchers have embraced the demographic framework in addressing housing issues:

“the only two characteristics which fulfill the (fundamental characteristics of a population) simultaneously and which can be defined or measured precisely are the sex and age of a person. These are universal personal

characteristics which have considerable bearing on the sort of life which each person lives, the contribution which each makes to the community of which he is a member, and the nature and extent of his demands upon that community. Of the two, age is perhaps the most important in determining the capacities, activities and the needs of an individual. The resources and needs of the community to which an individual belongs is the sum of the resources and needs of all its members, and this sum is inevitably limited by the totality of the age and sex of the members and the relative importance of each in the total. These represent the minimum requirements for an adequate description of a population, are distributed between the two sexes over the range of possible ages which determine its potential” (McArthur: 1961, 3).

The life cycle approach to housing addresses the changing needs of the population. “Each life cycle stage in the maturation of the family dictates different housing requisites that the family attempts to satisfy” (Kalbach & McVey: 1979, 345). With changing needs, if research is to address urban elderly housing issues, then research incorporating various dimensions such as age, sex, marital status is necessary. Researchers identify that “understanding the elderly market and its magnitude is necessary if sound research and quality services are to be developed for this market” (Scott: 1987, 1).

2.2 Demography

To understand the housing market from a demographic perspective, demographic analysis is utilized. Demography has been described as an area in which “the population is viewed as an aggregate of persons, represented by certain types of statistics.

Demography is concerned with the behavior of the aggregate (or of its parts) and not with the behavior of individuals” (Barclay: 1958, 2). Yet, research in demography has changed since Barclay wrote of the field in 1958. In fact, “little by little, the field of

investigations has been extended. It has become apparent that demographic considerations have their place in groupings much smaller and much more specific than the usual national aggregates” (Pressat: 1972, 6). No longer is demography a study of large-scale aggregates but is often more specific in terms of the demographic focus of the research.

Some researchers have noted that: “it is puzzling why housing and population have been relatively disconnected in analyses for so long. Housing and population are intimately related by the fact that the vast majority of the population resides in household living groups sheltered in housing units” (Myers: 1990, 5). The literature has extended into housing and recently has developed into an area in demography specific to housing. Housing Demography, edited by Myers (1990) and Household Demography and Household Modeling written by van Imhoff, et al. (1995) are two such examples of recent publications of demographic books specific to housing.

2.3 Aging

“The aging of human society worldwide is rapidly becoming one of the most distinct features of modernity. The fact that older people will exist on this planet in greater numbers than before means not only significant changes in the age composition of society, but a corresponding change in the norms, values, and attitudes concerning the elderly and the social policies affecting them” (Cockerham: 1991, xi).

Canada as a nation has reported vital statistics since 1921 and the changing population structure has resulted in an aged composition. “Why has the elderly segment of the population continued to grow? Canadians are living longer. The chances of surviving to old age have increased for all of us. And today at 65, people can expect to live more years than previous generations” (Statistics Canada, 1979). As the segment of elderly in the

population continues to grow, we see the growing interest in the area of aging. Publications dealing with all aspects of aging have been written and the area is continually being added to with further research being done.

The well-being of seniors in Alberta has been addressed by the formation of an Alberta Centre for well-being, publishing reports specific to the well-being of seniors. There have also been special monographs issued by Statistics Canada entitled: Canada's Elderly and The Elderly in Canada. The Urban Institute in Washington, D.C. has published numerous reports focusing on: The Housing of the Single Person Elderly and Housing For the Elderly in 2010: Projections and Policy Options.

The unique dimensions of aging give rise to various focuses in research.

“Individual aging is defined as the structural, sensory, motor, behavioral, and cognitive changes in a given organism over time, especially with respect to how these factors influence life chances and lifestyle at various stages of the life cycle”. “Population aging is where an increasing percentage of the population is composed of people over 60 or 65 years of age” (McPherson: 1990).

Differences between individual and population aging have been identified in the literature. When a researcher's focus changes from the individual, to numerous individuals in the same category (or cohorts), the focus also becomes more general and broad. Overtime, those currently deemed the population's elderly continue to age and new individuals continue to join that older segment of the population. Research of today's elderly allows probable forecasting through the application of the data that represents the current elderly. Nevertheless,

“the major difficulty in predicting for the elderly involves changing characteristics among cohort. The needs of future elderly may not be the same as those of current elderly. And policies that have impact for all

those over the age of 65 may not take into account the differing needs of 65- and 85-year olds” (Sinnott et al: 1983, 45).

In searching for publications regarding the elderly, one is faced with the diverse range of words that describe the topic, for example: elderly, aged, seniors, geriatrics, and etc. Even the slight alterations in the spelling of a word can produce varying results of published works such as aging (American) or ageing (British).

“Disagreement exists about both the terms used to describe older persons and the age categories covered. Among the many terms are seniors, senior citizens, the gerontic population, maturities, older consumers, the elderly, silver eagles, retirees, the gray set, and so on” (Lazer: 1994, 201).

This quote from Lazer, further illustrates the varying terms used in research dealing in the area of aging. As some of the terms become outdated and inappropriate, new terms identifying the elderly population are developed. The focus of research has changed,

“In the past, demographers have emphasized fertility and the structure of household groups in which the vast majority of the population lives, but they have traditionally stopped short of investigating how the search for accommodation in housing units affects those households. On the other hand economists, geographers, and urban planners have explored housing as a key component of urban structure, but they have rarely examined the demographic details of who lives in those housing units” (Myers: 1990, 3).

Various methodologies exist in how research regarding the elderly is addressed. It is the integration of the different methodologies that result in comprehensive research.

3.0 Research Questions

The following research questions have been identified

1. What are the 1991 and 1996 utilization rates of specific housing types for elderly Albertan household maintainers?
2. How many elderly Albertan and elderly Albertan household maintainers are expected in the year 2016 in Alberta?
3. How many elderly Albertan household maintainers, according to the calculated rates and projected population will be housed in single detached houses, apartments, attached housing and collective dwellings in 2016?
4. Who resides with married and widowed elderly Albertan household maintainers in single detached houses and apartments in 1991?

Together, the research questions allow for a comprehensive analysis of elderly housing.

Each research question is operationalized in section 3.3 of this chapter.

3.1 Methodology

The population of Canada is dynamic and reacts to process variables such as fertility, mortality, and migration. Each of these variables has unique effects on the population. For example, the baby boom that occurred in Canada between the years 1946 and 1966 had a profound impact on the housing market as there was an increased demand for houses with more bedrooms as space for children was needed. Although these demographic factors ultimately influence the population dynamics, the general variables (fertility, mortality and migration) are not explicitly dealt with in this research.

Instead of focussing on these basic demographic process variables, Canada's population is addressed through specified variables. These variables include: age, sex, geographic location (provincial), marital status, and structural dwelling type. Data for the identified variables may be derived from both survey and census sources. A survey representative of these variables, appropriate for analysis, was not located, so the research focus was directed toward the use of census data. The use of census data allows for utilization of periodic data that may be compared overtime.

3.2 Data Source

The specific data sources are the 1991 and 1996 Public Use Microdata Files (PUMF): Household and Housing File cd-roms from the Canadian censuses. The census generated three microdata files: the individual file, the families file, and the household and housing file. The 1991 Census public use household and housing microdata file is unaggregated data containing 297,000 household records which represent 3% of the total households in Canada, excluding collective dwellings. The 1996 Census public use household and housing microdata file is also unaggregated data based on a 2.8% sample from the 1996 census. These data represent 2.8% of the total households in Canada, excluding collective dwellings. The household file was chosen over the individual and family files as the structural type of dwelling variable can be accessed in this file.

As the Public Use Microdata Files are generated from census questionnaires, the data represents the Canadian population. As the data are periodically generated and easily accessible, the comparisons from the 1991 and 1996 files are advantageous in the research.

The 1991 and 1996 microdata files are obtained through the use of computer disk (cd-rom) which is distributed by Statistics Canada. Another source for applicable Canadian demographic data is through the use of certain public accessible websites. One such website is the Statistics Canada website, which is located at www.statcan.ca. Another reputable source for demographic data is the University of Alberta data library website located at <http://datalibrary.ualberta.ca> (use subject to certain conditions, see website for details). These aforementioned websites were accessed during the time period of September 1998 through July 1999. Data such as Canada's population, births, deaths,

are obtainable via the websites, accessible from any modem connected computer. The use of websites has altered the method of accessing demographic data, which is now easily obtained through the Internet.

Statistics Canada publications are another source for data applicable to Canadian demographic research. Monographs published by Statistics Canada tend to be generated from census data that is inaccessible through other mediums. Utilizing the publications reduces calculation errors in the re-generation of the already published data.

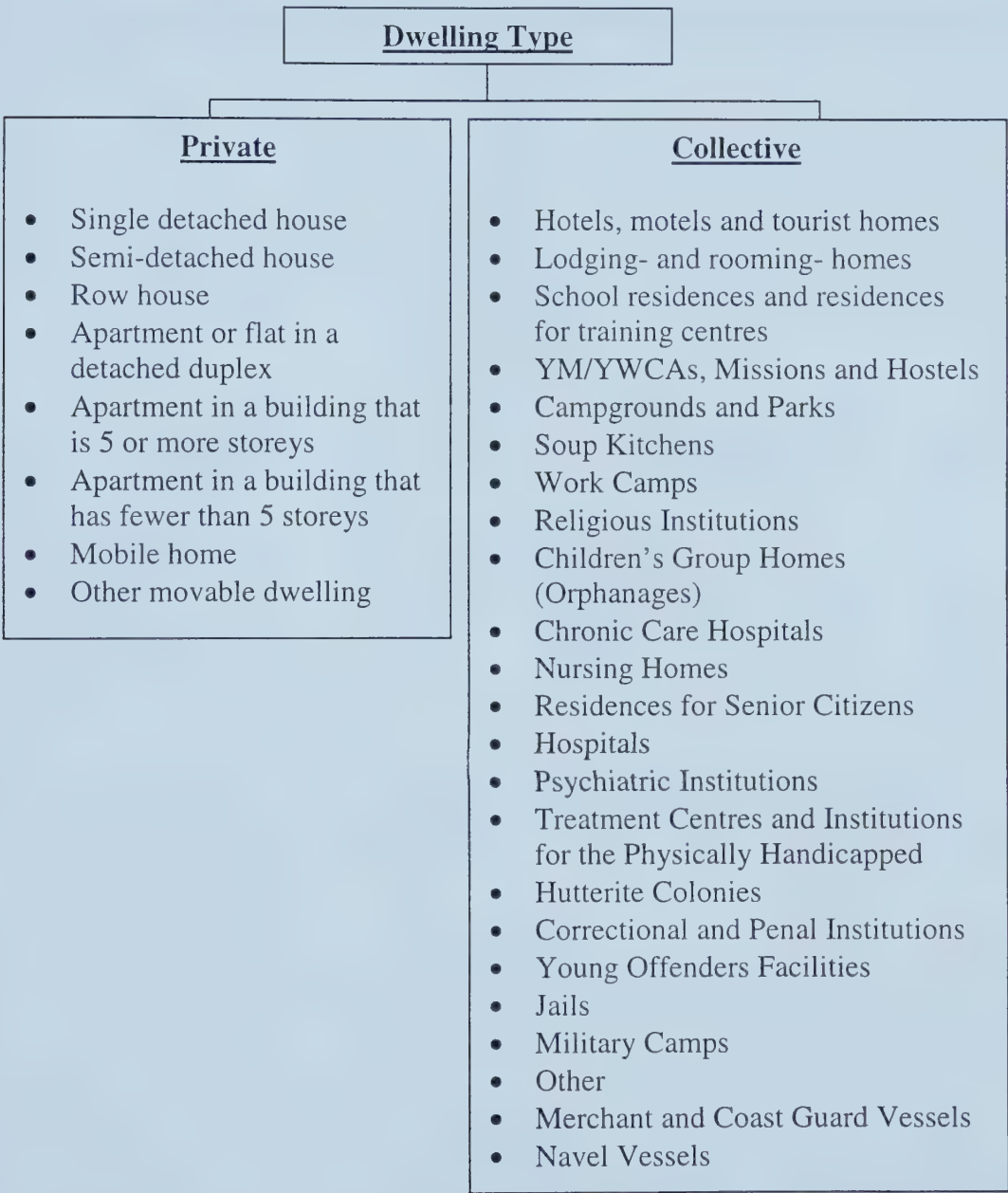
The data source specific to 1991 collective dwellings is the Statistics Canada “Nation Series” catalogue 93-311 entitled Dwellings and Households. Table 2: Population in Collective Dwellings by Type, Institutional Resident/ Staff Status, Showing Age and Sex, for Canada, Provinces and Territories, 1991 represents the total population in collective dwellings. The similar table for 1996 collective dwelling data is the “Nation Series” cd-rom produced by Statistics Canada.

Another source which describes the individuals in collective dwellings is entitled: The Population in Collective Dwellings: Canada, 1971-1991 (catalogue no. 91F0015MPE). This publication “attempts to rescue a small but nonetheless important segment of the Canadian population from neglect, those classified by the census as long-term residents in collective dwellings” (Statistics Canada, 1991).

By incorporating those individuals in collective dwellings with the rest of the population, all possibilities of dwellings can be accounted for. At older ages, it is particularly important to consider collective type dwellings such as “residential-care facilities for the aged”. With an accurate representation of the population, the research questions can assess the elderly housing situation of today and make future projections.

Focusing on private and collective dwellings, there are various types as Figure 1 displays. .

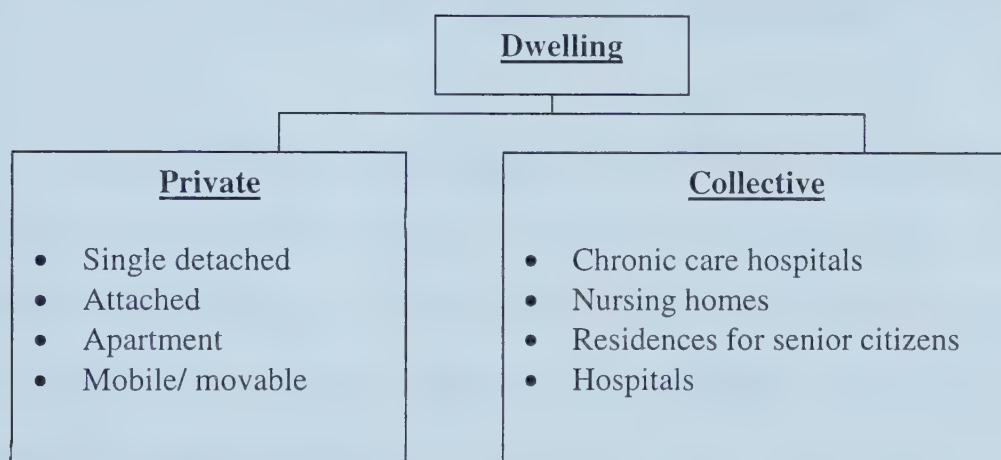
Figure 1: Classification of Dwelling Types As Private or Collective, Canada, 1991.



Source: Statistics Canada (1992) 1991 Census Dictionary Reference. Minister of Industry, Science and Technology, 1992. January. Ottawa, Canada. Cat. 92-301E (p. 156-157, 164-165).

A primary focus of the research is the private dwelling. With an aging population however, collective dwellings cannot be ignored, as nursing home residences for senior citizens and hospitals are important in the analysis of elderly housing. Where Figure 1 notes all possible dwellings, Figure 2 outlines the dwelling types deemed most important to elderly housing.

Figure 2: Dwelling Types Important in the Analysis of Elderly Housing, Canada, 1991.



Source: Statistics Canada (1992) 1991 Census Dictionary Reference. Minister of Industry, Science and Technology, 1992. January. Ottawa, Canada. Cat. 92-301E (p. 156-157, 164-165).

See Appendices for complete definitions of selected dwelling types.

3.3 Operationalization of the Research Questions

Research question one asks, “what are the 1991 and 1996 utilization rates of specific housing types for elderly urban Albertan household maintainers”?

The utilization rates show the number of household maintainers in various dwelling types.

Utilization rates are calculated by the following formula:

$$\text{Utilization rates} = \frac{\text{number of elderly household maintainers in housing type}}{\text{number of elderly Albertan household maintainers}} \times 100$$

The Alberta residents represented in the (1991, 3% PUMF and the 1996, 2.8% PUMF) sample and the 100% population in collective dwellings, are used to calculate the utilization rates. To calculate the utilization rates, the number of elderly household maintainers in each housing type is divided by the total number of elderly Albertans living in all housing types.

Specific housing types are identified as being single detached houses, apartments, attached houses, and collective dwellings.

“Elderly” refers to those individuals in the population 55 years of age and over. The use of the term “elderly” to define the individuals represented in the research must be clarified as individuals who are 55 years old are not considered to be the same as those individuals 75+ years of age. The use of the term elderly distinguishes the group of individuals being analyzed from the rest of the population. As noted in the literature review, the nomenclature used to describe the older population is diverse (numerous

terms could have been chosen to represent this group of individuals). Throughout the thesis the terms elderly and seniors are used interchangeably to represent the population of Alberta aged 55+.

The entire province of Alberta is chosen as the geographic unit over metropolitan areas such as a CMA (Central Metropolitan Area) or a CA (Census Agglomeration), as the projected 2016 population represents all of Alberta (and not selected areas such as urban only). One could focus on Census Metropolitan Areas (CMA) which defines any area in Canada that contains 100, 000 or more population in a developed area and/ or a Census Agglomeration (CA) defined as an urbanized area containing at least a population of 10, 000. However, in order to focus on these urbanized areas, one would need a similar projected urban population or certain assumptions would be necessary to proportion the projected population into appropriate urban and rural areas.

A **household maintainer** “refers to the person in the household who pays the rent, the mortgage, the taxes, the electricity, etc., for the dwelling. If no one person in the household is responsible for such payments, Person 1 is considered to be the only household maintainer” (Statistics Canada: 1992, cat. 92-301E). Person 1 is the household reference person in which the census questionnaire form is based.

The *second research question* asks “how many elderly Albertans and elderly Albertan household maintainers are expected in the year 2016 in Alberta”? The projected year 2016 is chosen, as this is 25 years in the future from the 1991 data source and 20 years in the future from the 1996 data source. A projection 20 or 25 years into the future

allows the research to address uncertainties of the population years from now. The nature of the data allows the projection to foretell the future of elderly housing. As previously noted, the focus of the research is not to recalculate population projections; the projections previously developed by Alberta Health will be utilized.

A population projection takes into consideration the future growth of the population according to various demographic variables. The projections are based upon figures from the Alberta Health Care Insurance Plan (AHCIP) registry population. As health plans are important to older individuals, using Alberta Health's population projections is justifiable. The data used to generate the projections includes the population counts derived from the Alberta Health Care Insurance Plan Registry File, births and deaths (from Alberta Vital Statistics), projected total fertility rates and the number of net migrants for Alberta, from Statistics Canada. The cohort component method was used for projecting Alberta's population by Alberta Health (see Shryock, Siegel et al., 1976 for more information regarding the cohort component method). The cohort component method addresses the aspects of fertility, mortality and migration of the Alberta population independently. The population projections use medium mortality, medium fertility and high migration assumptions, which are based on assumptions regarding births, deaths, immigration, the process variables from the demographic equation. This projection was chosen as it was deemed the most likely scenario to occur by the researchers at Alberta Health. This assumed medium projection included detailed data for the elderly age groups, specific to Albertas elderly population. Furthermore, no other complete projection was included by Alberta Health. For further detail on the projection methodology see the 1998 Alberta Health publications, which outlines the

methodology used in the population projections for Alberta and its health regions 1996-2016. The 2016 projected Alberta population is a 100% projection, which includes individuals in collective dwellings. The projection is a plausible representation of Alberta's population in the future. For the purposes of this exercise, any reasonably calculated projection could have been used. Alberta Health's population projection of the Alberta population is chosen as a model example in this research.

To calculate the expected number of household maintainers in 2016, several preliminary calculations must be made. First, the number of individuals according to the 1991 census in Alberta (within the age groups 55-64, 65-74, and 75+) and the number of individuals in the projected population of Alberta in 2016 (for the same age groups) must be calculated (by sex). Then, a "rate of change" between the individuals in the Alberta 1991 and 2016 populations is calculated by dividing the number of individuals in 2016 by the number of individuals in 1991. Under the assumption that the rate of change between individuals and household maintainers is the same, the calculated rate of change is applied to the distributed 1991 household maintainers of Alberta. The 1991 distributed household maintainers (according to dwelling type) is integrated with the number of individuals residing in collective dwellings by multiplying the dwelling sample by 33.3. The 100% representation of household maintainers is then multiplied by the calculated rate of change, which determines the expected number of household maintainers in 2016.

Similarly for the 1996 data, a "rate of change" is calculated for the individuals in Alberta by dividing the number of individuals in 2016 by the number of individuals in 1996. Under the assumption that the rate of change between individuals and household

maintainers is the same, the calculated rate of change is applied to the distributed 1996 household maintainers of Alberta. The 1996 distributed household maintainers (according to dwelling type) is integrated with the number of individuals residing in collective dwellings by multiplying the dwelling sample by 36 (which is determined using the equation, $100/2.8$). The 100% representation of household maintainers is then multiplied by the calculated rate of change, which determines the expected number of household maintainers in 2016. The expected number of household maintainers calculated from the 1991 and 1996 rates can be compared.

The *third research question* integrates the first two research questions by asking “how many elderly urban Albertan household maintainers, according to the calculated rates and projected population will be housed in single detached houses, apartments, attached housing and collective dwellings in 2016”? Using the calculated rate of change in research question one, these rates are applied to the projected population identified in research question two.

As noted previously, the data in research question one is representative of 3% of the 1991 Canadian population. In order to approximate the 100% population, the 3% rates are multiplied by $33\frac{1}{3}$ ($33\frac{1}{3} \times 3\% = 100\%$). For the projected population, assuming that the age-specific housing rates hold the rates are applied to the 100% 2016 population of household maintainers. Similarly, the 1996 data is representative of approximately 2.8% of the 1996 Canadian population. In order to approximate the 100% population, the 2.8% rates are multiplied by 36 ($36 \times 2.8\% = 100\%$). For the projected population, assuming that the age-specific housing rates hold, the rates are applied to the

100% 2016 population of household maintainers. The 1991 and 1996 Public Use Microdata File data have a separate weighting variable.

Research question four asks “who resides with married and widowed elderly Albertan household maintainers in single detached houses and apartments in 1991”? This research question addresses the entire household composition. Only the 1991 household composition is addressed in this research question. As the thesis does not focus on non-household maintainers, the data represented by question four is uses only 1991 data to address the complexities in elderly housing. The household composition could be calculated using the 1996 census data as well, however, it is not utilized in this thesis. The 1991 household maintainer is linked with other individuals in the dwelling, to describe the household composition for a household maintainer who is married or widowed living in a single detached house or an apartment

3.4 The Variables Defined

The variables used to address age specific housing in specified locales of specified individuals include: age, sex, and marital status and (household variables of) dwelling type (dtypeh) and (a selection variables of) province (provh).

The age variable, “hmage” is the age of the primary household maintainer. The microdata file classifies the individual cases into pre-determined age categories: 1= 15-24, 2=25-34, ..., 5=55-64, 6=65-74, 7=75-79, 8=80+. The categories are not grouped evenly; as the 75-79 category is only 5 years and the 80+ category is open whereas, the rest of the age groups are 10-year groupings. This uneven age year grouping in the data

cannot be altered to produce all similar 5-year groups. The research will focus on the age groups beginning at age 55 as the collective dwelling data has comparable age groupings. The data will represent all individuals 55+. Age 55 is an appropriate age to begin analysis of elderly housing as the moves an individual makes for retirement may be as early as 55. The three age groups specific to the analysis are 55-64, 65-74 and 75+. The age group 55-64 is a transition age group indicative of changes that take place in the life cycle. As already noted the population as a whole is aging and the elderly are getting older. By including the 55-64 year old age group in the analysis aging with respect to housing is addressed as a transition.

The sex variable is “hmsex” identifies the sex of the primary householder maintainer (1= Male and 2= Female). The male and female household maintainer populations have unique aging characteristics. By dividing the data up into the dichotomy, the housing experiences will be specific to each sex instead of an aggregated population.

The marital status variable (“hmmarst”) identifies the legal marital status of the householder maintainer. The breakdown of this variable is 1= divorced, 2= legally married (and not separated), 3= legally married and separated, 4= never married (single), 5= widowed, and 8= not available. Since, the research focuses on the elderly who are in their later phases of life, those individuals legally married (and not separated) (=2) and those widowed (=5) are of importance as the majority of the elderly population are married or have become widowed. This variable is of particular importance to the fourth research question identifying who resides with the 1991 household maintainer.

The variable “dtypeh” identifies the structural type of dwelling that the respondent lives in. The variables are: 1= single-detached house, 2= apartment 5+ storeys, 3= apartment <5 storeys, 4=semi-detached house, 5= apartment in a detached duplex, 6= row house, 7= other single-attached house, 8= mobile home or other movable. The categories of housing identified by this variable are not indicative of all housing types (such as condominiums) which is not an independent value in the variable. The listing accounts for the variability in the types of housing structures that exist in Canada in the years 1991 and 1996 and condominiums are identified by the type of building in which the dwelling exists (likley included as an apartment with less than 5 storeys). The categories of the structural type of dwelling have the propensity to change over time. Possibly in future censuses, condominiums will be identified by a single value (for example, 9= condominium). With these classifications, no citizens are neglected but where they live is dependent on the type of housing. The only individuals not included in this category are those who are institutionalized and living in other collective contexts.

The variable labeled “provh” identifies the provinces of Canada. As the focus of this research is of the province of Alberta, the individual cases representative of the province are selected for analysis (Alberta= 48).

3.5 Unit of Analysis

The unit of analysis that is obtained from the household microdata file is household maintainers. A household maintainer “refers to the person in the household who pays the rent, the mortgage, the taxes, the electricity, etc., for the dwelling. If no one person in the household is responsible for such payments, Person 1 is considered to be the

only household maintainer” (Statistics Canada: 1992, cat. 92-301E). Only one person is technically designated as the household maintainer, which raises certain methodological issues when addressing the entire composition of the household.

The microdata file has the capability of accounting for the individuals who reside in the household but are not identified as the household maintainer. These indicator variables identify the number of individuals who live with the household maintainer by age and sex, according to dwelling type. The non-household maintainers are classified by indicator variables into the age groups: <5, 5-17, 18-24, 25-59, 60-64, 65-74, and 75+. So, for example, a male household maintainer between the ages 65-74 residing in a single detached house, may have a female who resides in the household aged 60-64. Recall that the age variable contains the age groups 15-54, 55-64, 65-74, 75-79, and 80+. The similarity in the age groups of the household maintainer (the age variable) and the non-household maintainers (the indicator variables) is reduced to two categories: 65-74 and 75+. *The uneven classification of the household maintainers and non-household maintainers aggregated age groups reduces the comparability of the groups. However, the data will allow for some resemblance of the composition for entire households instead of just the household maintainers.*

4.0 Results

The 1991 and 1996 populations of Alberta are categorized by age group and sex. The following table portrays the elderly populations age 55+ of Alberta for 1991 and 1996.

For the complete distribution of the entire 1991 and 1996 Alberta populations, see Table A1 and A2 in the Appendix.

Table 1: The Distribution of the Elderly by Age and Sex, Alberta, 1991 and 1996.

Age Group	Males		Females	
	1991	1996	1991	1996
55-64	97,076	102,045	94,149	100,910
65-74	64,075	74,015	74,660	82,535
75+	37,419	42,810	56,711	67,545
55+ Total	198,570	218,870	225,520	250,990

Source: Statistics Canada (1991 data) CANSIM matrix 6376.

<http://datalib.ualberta.ca>

Statistics Canada (1996 data) The Nation

<http://datalib.library.ualberta.ca/data/census/1996/nation/demographics.html>

Table 1 shows the number of individual elderly males and females in Alberta in 1991 and 1996. Comparing the individuals by sex, males are more prevalent in the 55-64 age group whereas, females outnumber males in the age groups 65-74 and 75+ in both

1991 and 1996. This pattern is influenced by the differential mortality expectancies experienced by females.

The 2016 projected population is obtained from Alberta Health's Projections. For the complete population distribution of the projected elderly population of Alberta in 2016, see Table A3 in the Appendix.

Table 2: Projected Elderly Population by Selected Age Groups and Sex for Alberta, 2016.

Age Group	Males	Females
55-64	242,445	242,008
65-74	148,801	153,927
75+	871,93	116,472

Source: Alberta Health (1998) Population Projections for Alberta and its Health Regions 1996-2016. Health Surveillance. April. Edmonton, Alberta.

The distribution in Table 2 of the projected population is influenced by life expectancy differences between the sexes. The 75+ age group contains more females than males (29279 more females than males). Comparing the 1991 and 1996 populations to the projected 2016 population, the 2016 population contains a larger number of elderly individuals, (which is visible in each of the three elderly age groups) which accentuates the aging and expected growth of Alberta's population. The rates of change for individual

males and females between 1991 and 2016 are obtained by taking the 2016 population divided by the 1991 population.

Table 3: The Rates of Change for Elderly Males and Females for Alberta, 1991 to 2016

Age Group	Males	Females
55-64	2.50	2.57
65-74	2.32	2.06
75+	2.33	2.05

Similarly, for 1996, the rates of change for individual males and females are obtained by taking the 2016 population divided by the 1996 population.

Table 4: The Rates of Change for Elderly Males and Females for Alberta, 1996 to 2016.

Age Group	Males	Females
55-64	2.38	2.40
65-74	2.01	1.86
75+	2.04	1.72

The rate of change that is the largest is for the females of the age group 55-64 in both 1991 and 1996. The projected population for females in the age group 55-64 in 2016 (242,008) is significantly larger than the female population in 1991 (94,149) or in 1996

(100,910). Comparing the rates of change between 1991 and 2016 versus 1996 and 2016 the rates are lower in 1996 than in 1991 as the population is 5 years closer to the projected population.

Using the rates of change calculated for male and female individuals, the projection of the household maintainers (the appropriate unit of analysis) by sex can be calculated. The number of household maintainers in Alberta in 1991 is obtained by combining the 3% PUMF –Household File and the population in collective dwellings (100% data).

Combining the private and public dwellings, the number of household maintainers in Alberta in 1991 is distributed according to dwelling type. By multiplying the PUMF data by 33.3 this distribution represents 100% of the 1991 elderly Alberta household maintainer population. The male household maintainers in the PUMF sample in single detached houses (1948) are multiplied by the value 33.3. This approximates 64,933 household maintainers in the total population. To approximate the total number of household maintainers in each age group, the PUMF sample is multiplied by the weight of 33.3 and the collective dwelling data is not adjusted.

Table 5: The Number of Male Household Maintainers by Selected Age Group for Alberta, 1991.

Dwelling Type		55-64	65-74	75+
Single Detached	sample	1,948	1,294	572
	x 33.3	64,933	43,133	19,067
Apartment	sample	207	188	138
	x 33.3	6,900	6,267	4,600
Attached	sample	174	140	68
	x 33.3	5,800	4,667	2,267
Mobile/ Movable	sample	83	61	28
	x 33.3	2,767	2,033	933
Collective	100%	695	1485	5,110
Total		81,095	57,585	31,977

Source: Statistics Canada, 1991 Census of Canada. Public Use Microdata File, Household and Housing File, 1993.

Statistics Canada, The Nation cat. 93-311. Table 2 (p.30-31).

By multiplying the sample data by the appropriate weighting the number of household maintainers is more representative of the entire province of Alberta. These approximations of the elderly population can be used to describe the total elderly household maintainers' population rather than a portion of it.

Table 6: The Number of Female Household Maintainers by Selected Age Group, for Alberta, 1991.

Dwelling Type		55-64	65-74	75+
Single Detached	sample	435	494	405
	x 33.3	14,500	16,467	1,350
Apartment	sample	186	259	319
	x 33.3	6,200	8,633	10,633
Attached	sample	112	107	67
	x 33.3	3,733	3,567	2,233
Mobile/ Movable	sample	25	31	14
	x 33.3	833	1,033	467
Collective	100%	555	1,690	11,590
Total		25,822	31,390	38,423

Source: Statistics Canada, 1991 Census of Canada. Public Use Microdata File, Household and Housing File, 1993.

Statistics Canada, The Nation cat. 93-311. Table 2 (p.30-31).

The weighting of the sample (33.3) does not change the distribution of the household maintainer sample but allows for the residents of collective dwellings to be incorporated into the analysis. One could divide the collective dwelling population by 3 and the dwelling types would be comparable. By multiplying the sample by 33.3333 in tables 4 and 5, the population more accurately reflects the actual 1991 dwelling situation.

The following tables 7 and 8 identify the utilization rates of specific housing types for elderly Albertan household maintainers. The utilization rates are calculated by dividing the dwelling type for each age group by the total column percentage. For

example, the number of males in single detached houses represents 80.07% of the household maintainers for the age group 55-64 ($64933/81095 \times 100 = 80.07\%$).

Table 7: Percentage Distribution of Male Household Maintainers by Dwelling Type and Selected Age Group for Alberta, 1991.

Dwelling Type	55-64	65-74	75+
Single Detached	80.07%	74.90%	59.63%
Apartment	8.51%	10.88%	14.39%
Attached	7.15%	8.10%	7.09%
Mobile/Movable	3.41%	3.53%	2.92%
Collective	0.86%	2.58%	15.98%

Source: Statistics Canada, 1991 Census of Canada. Public Use Microdata File, Household and Housing File, 1993.
Statistics Canada, The Nation cat. 93-311. Table 2 (p.30-31).

Table 8: Percentage Distribution of Female Household Maintainers by Dwelling Type and Selected Age Group for Alberta, 1991.

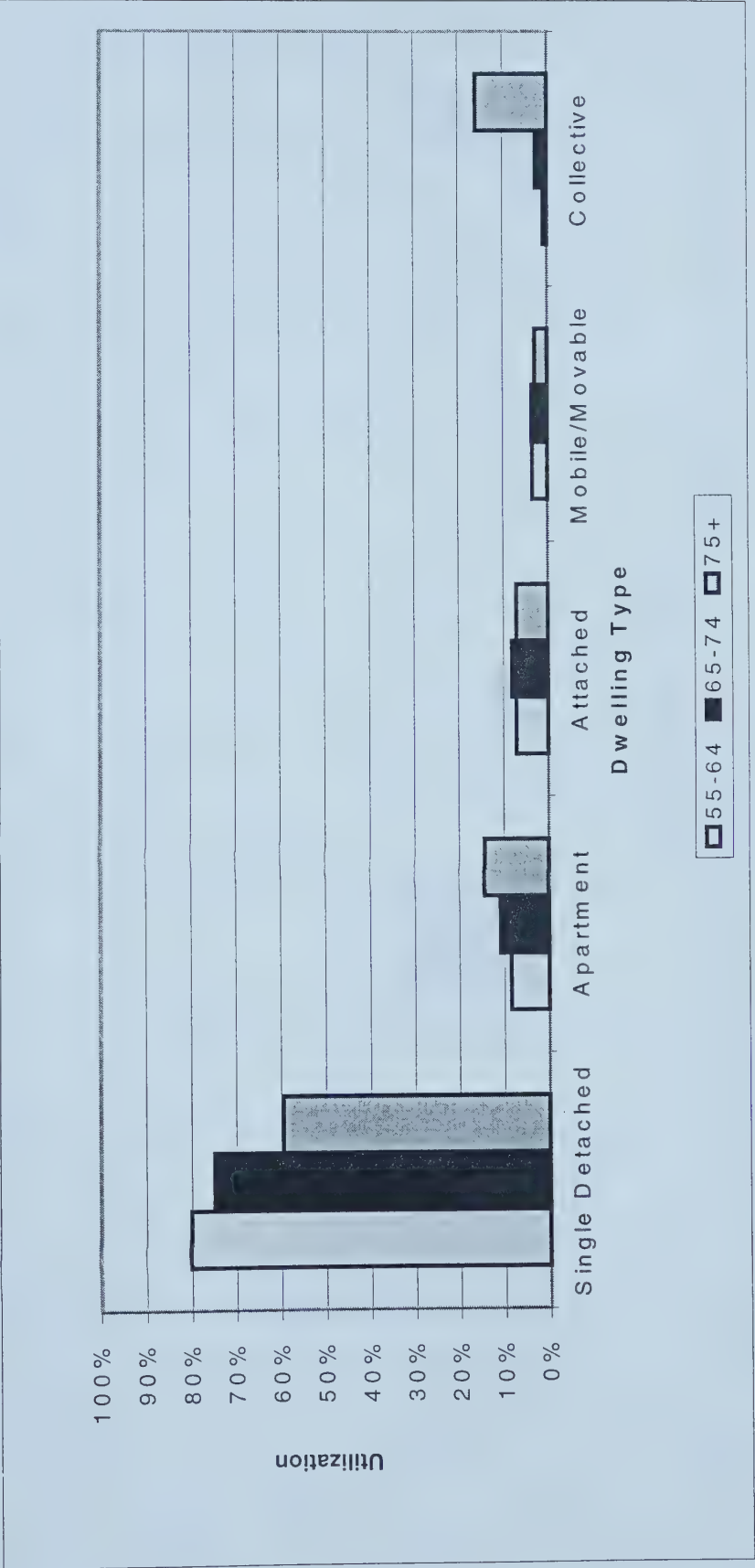
Dwelling Type	55-64	65-74	75+
Single Detached	56.15%	52.46%	35.13%
Apartment	24.01%	27.50%	27.67%
Attached	14.46%	11.36%	5.81%
Mobile/Movable	3.23%	3.29%	1.21%
Collective	2.15 %	5.38%	30.16%

Source: Statistics Canada, 1991 Census of Canada. Public Use Microdata File, Household and Housing File, 1993.
Statistics Canada, The Nation cat. 93-311. Table 2 (p.30-31).

According to the utilization rates (represented by the percentage distribution) in 1991, elderly Albertan male household maintainers predominantly lived in single

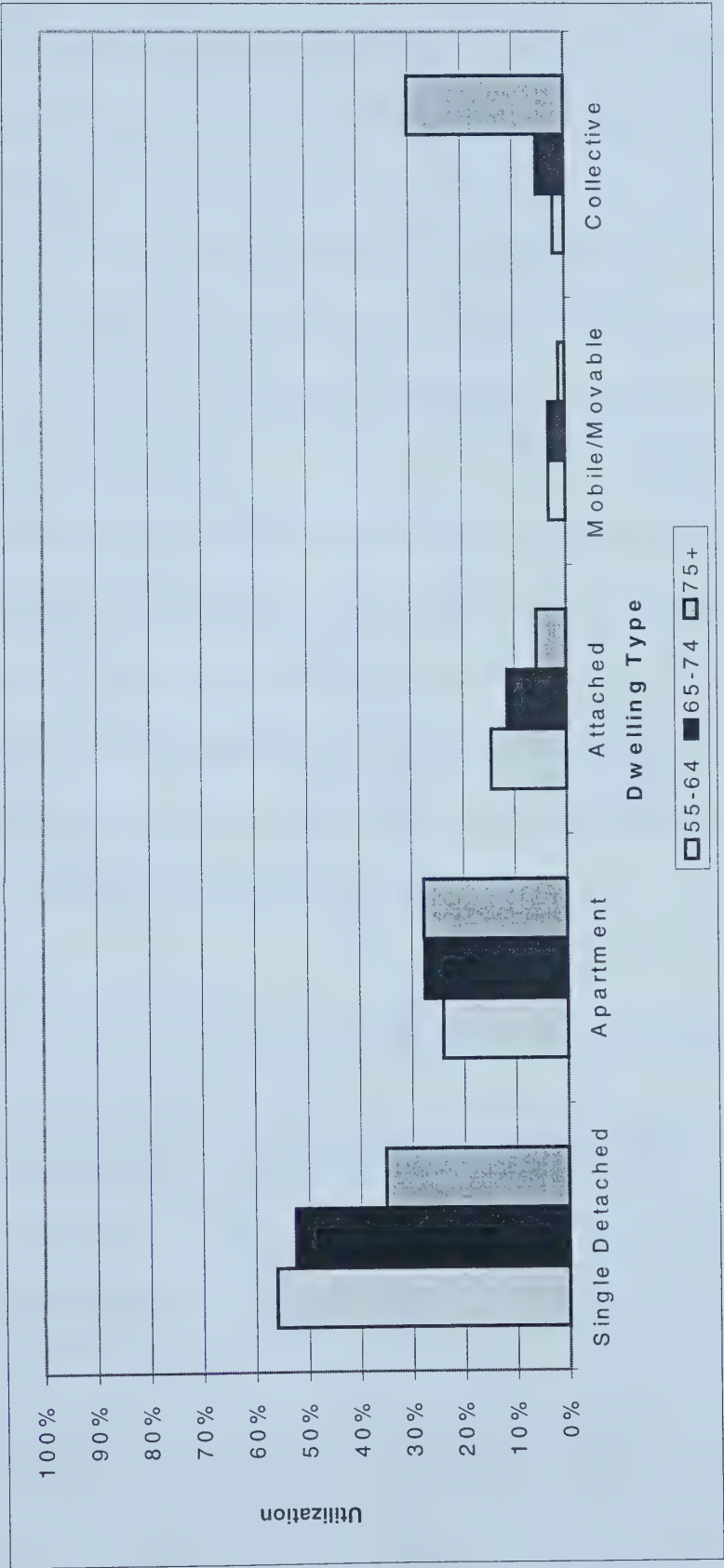
detached houses 80.07% (even in the 75+ age group). Elderly female household maintainers tended to have a more diverse housing situation. A larger percentage of females reside in collective dwellings, especially in the 75+ age group (30.16%). Although, single detached housing is the predominant dwelling for elderly female household maintainers, apartment living is also important to this segment of the population

Figure 3: Dwelling Types of Male Household Maintainers by Age Group, for Alberta, 1991.



Source: Statistics Canada, 1991 Census of Canada. Public Use Microdata File, Household and Housing File, 1993.
Statistics Canada, The Nation cat. 93-311. Table 2 (p.30-31).

Figure 4: Dwelling Types of Female Household Maintainers by Age Group, for Alberta, 1991.



Source: Statistics Canada, 1991 Census of Canada. Public Use Microdata File, Household and Housing File, 1993. Statistics Canada, The Nation cat. 93-311. Table 2 (p.30-31).

The representation of the 1991 household maintainers who are 55-64 years of age in figures 3 and 4, graphically show that these individuals tend to reside in single detached housing. With increasing age however, more males lived in apartments and collective dwellings

In 1991 Alberta, the graphs display female household maintainers tended to live in various dwelling types. Single detached houses were predominant, however, apartment use increased with age. Collective dwelling usage also increased with age (particularly for the 75+ age group).

As the utilization rates identify the types of housing specific to elderly Albertan household maintainers in 1991, the number of elderly Albertan household maintainers expected in 2016 is calculable by incorporating the previously calculated rates of population change. For example, for household maintainers of ages 55-64 residing in single detached houses, the representative number of household maintainers is multiplied by 2.50 (the rate of change) ($64933 \times 2.50 = 162169$).

Table 9: Expected Male Household Maintainers by Dwelling Type and Age Group for Alberta, 2016.

Dwelling Type	55-64	65-74	75+	Total
Single Detached	162,169	100,168	44,429	306,766
Apartment	17,233	14,553	10,719	42,504
Attached	14,485	10,837	5,282	30,604
Mobile/ Movable	6,910	4,722	2,175	13,807
Collective	1,736	3,449	11,907	17,092
Total	202,533	133,729	74,511	410,773

Source: Statistics Canada, 1991 Census of Canada. Public Use Microdata File, Household and Housing File, 1993.

Statistics Canada, The Nation cat. 93-311. Table 2 (p.30-31).

According to the rates of change, a large number of male household maintainers in Alberta in 2016 will reside in single detached houses. In 2016, in Alberta, a total of 306766 household maintainers ages 55+ will reside in single detached houses. The number of individuals in collective dwellings is projected to increase particularly for males aged 75+ (to 11907 in 2016 from 5110 in 1991).

Table 10: Expected Female Household Maintainers by Dwelling Type and Age Group for Alberta, 2016.

Dwelling Type	55-64	65-74	75+	Total
Single Detached	37,272	33,949	27,726	98,947
Apartment	15,937	17,799	21,839	55,575
Attached	9,596	7,353	4,587	21,537
Mobile/ Movable	2,142	2,130	958	5,231
Collective	1,427	3,484	23,803	28,714
Total	66,374	64,717	78,913	210,004

Source: Statistics Canada, 1991 Census of Canada. Public Use Microdata File, Household and Housing File, 1993.

Statistics Canada, The Nation cat. 93-311. Table 2 (p.30-31).

According to the rates of change, elderly female household maintainers in Alberta in 2016 are expected to continue to maintain single detached houses (98,947 single detached houses for those 55+). Elderly females ages 75+ will utilize collective dwellings (23,803) to a greater extent than seen in 1991 (11,590).

To determine the total number of elderly Albertan household maintainers, according to the 1991 calculated rates and 2016 projected population, who will be housed in single detached houses, apartments, attached housing and collective dwellings, the totals for male and female household maintainers are added together. The following table identifies

the complete breakdown of the 2016 population of both sexes of household maintainers according to the 1991 housing utilization rates.

Table 11: Expected Total Household Maintainers by Dwelling Type and Age Group for Alberta, 2016

Dwelling Type	Both Sexes	Both Sexes	Both Sexes	Total
	55-64	65-74	75+	
Single Detached	199,441	134,118	72,155	405,714
Apartment	33,170	32,352	32,557	98,079
Attached	24,082	18,191	9,869	52,141
Mobile/ Movable	9,052	6,852	3,133	19,037
Collective	3,162	6,933	35,711	45,806
Total	268,907	198,446	153,424	620,777

Source: Statistics Canada, 1991 Census of Canada. Public Use Microdata File, Household and Housing File, 1993.

Statistics Canada, The Nation cat. 93-311. Table 2 (p.30-31).

Household maintainers of both sexes 75+ years of age in 2016 will maintain dominance in single detached housing (72,155) followed by collective dwellings (35,711) and apartments (32,557).

The number of household maintainers in Alberta in 1996 is constructed by incorporating the 2.8% PUMF –Household File and the 1996 population in collective dwellings (100% data).

Table 12: Number of Male Household Maintainers by Selected Age Group for Alberta, 1996.

Dwelling Type		55-64	65-74	75+
Single Detached	sample	1,907	1,373	662
	x36	68,652	49,428	23,832
Apartment	sample	234	200	122
	x36	8,424	7,200	4,392
Attached	sample	184	149	90
	x36	6,624	5,364	3,240
Mobile/ Movable	sample	73	66	29
	x36	2,628	2,376	1,044
Collective	100%	670	1,320	5,030
Total		86,998	65,688	37,538

Source: Statistics Canada, 1996 Census of Canada. Public Use Microdata File, Household and Housing File, 1999.

Statistics Canada (1999), The Nations Series. Complete Edition. Cat. 93F0020XCB96004.

Comparing the 1996 male household maintainers to those represented in 1991, more individuals resided in single detached dwellings. Most notably, fewer individuals in 1996 resided in collective dwellings than in 1991. As the 1996 population is slightly larger than the 1991 population, the number of household maintainers is slightly larger due to the increase in population size.

Table 13: Number of Female Household Maintainers by Selected Age Group for Alberta, 1996.

Dwelling Type		55-64	65-74	75+
Single Detached	sample	492	545	460
	x36	17,712	19,620	16,560
Apartment	sample	181	254	386
	x36	6,516	9,144	13,896
Attached	sample	157	122	84
	x36	5,652	4,392	3,024
Mobile/ Movable	sample	36	23	28
	x36	1,296	828	1,008
Collective	100%	480	1,485	12,560
Total		31,656	35,469	47,048

Source: Statistics Canada, 1996 Census of Canada. Public Use Microdata File, Household and Housing File, 1999.

Statistics Canada (1999), The Nations Series. Complete Edition. Cat. 93F0020XCB96004.

The 1996 female household maintainers resided predominantly in single detached houses. The use of collective dwellings by elderly females decreased in 1996 compared to the usage in 1991.

Table 14: Percentage Distribution of Male Household Maintainers by Dwelling Type and Age Group for Alberta, 1996.

Dwelling Type	55-64	65-74	75+
Single Detached	78.91%	75.25%	63.49%
Apartment	9.68%	10.96%	11.70%
Attached	7.61%	8.17%	8.63%
Mobile/Movable	3.02%	3.62%	2.78%
Collective	0.77%	2.01%	13.40%

Source: Statistics Canada, 1996 Census of Canada. Public Use Microdata File, Household and Housing File, 1999.

Statistics Canada (1999), The Nations Series. Complete Edition. Cat. 93F0020XCB96004.

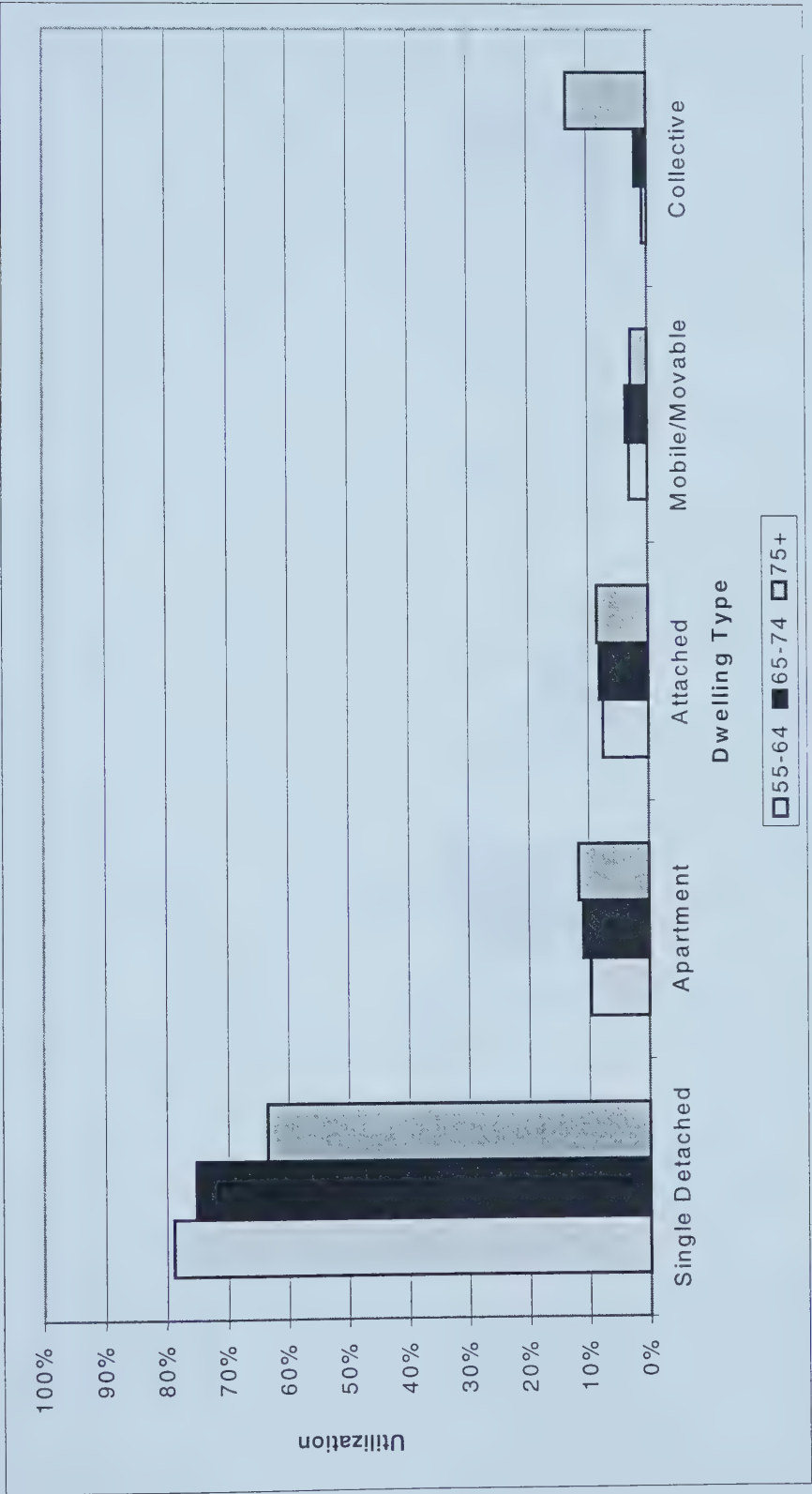
Table 15: Percentage Distribution of Female Household Maintainers by Dwelling Type and Age Group for Alberta, 1996.

Dwelling Type	55-64	65-74	75+
Single Detached	55.95%	55.32%	35.20%
Apartment	20.58%	25.78%	29.54%
Attached	17.85%	12.38%	6.43%
Mobile/Movable	4.09%	2.33%	2.14%
Collective	1.52%	4.19%	26.70%

Source: Statistics Canada, 1996 Census of Canada. Public Use Microdata File, Household and Housing File, 1999.

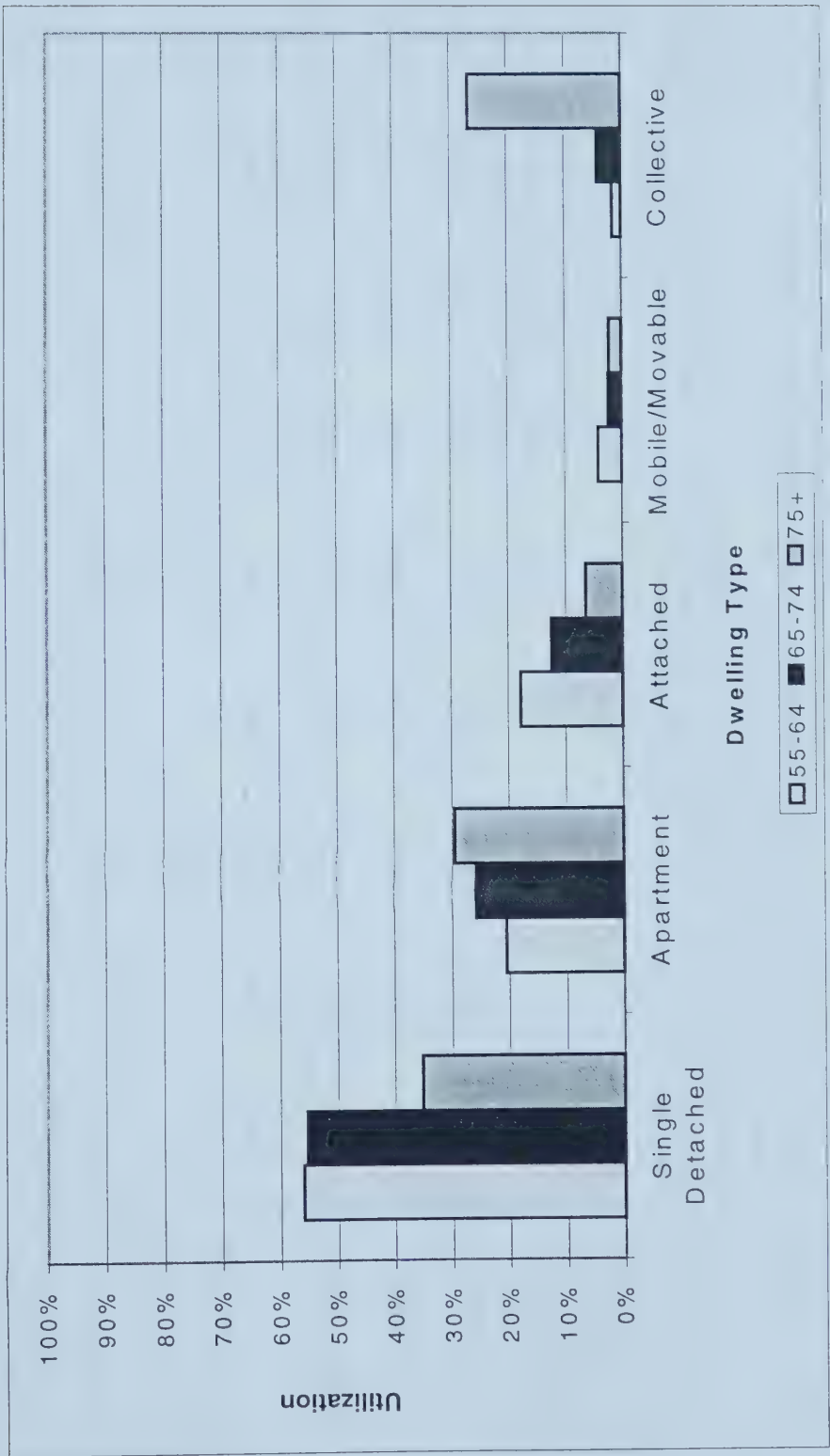
Statistics Canada (1999), The Nations Series. Complete Edition. Cat. 93F0020XCB96004.

Figure 5: Dwelling Types of Male Household Maintainers by Age Group, for Alberta, 1996.



Source: Statistics Canada, 1996 Census of Canada. Public Use Microdata File, Household and Housing File, 1999. Statistics Canada (1999), *The Nations Series*. Complete Edition. Cat. 93F0020XCB96004.

Figure 6: Dwelling Type for Female Household Maintainers by Age Group, for Alberta, 1996.



Source: Statistics Canada, 1996 Census of Canada. Public Use Microdata File, Household and Housing File, 1999.
Statistics Canada (1999), The Nations Series. Complete Edition. Cat. 93F0020XCB96004.

Table 16: Change in Percentage Distribution of Male Household Maintainers by Dwelling Type and Age Group in Alberta, 1991 and 1996.

Dwelling Type	55-64			65-74			75+		
	1991	1996	Change 91-96	1991	1996	Change 91-96	1991	1996	Change 91-96
Single Detached	80.07%	78.91%	-1.16	74.90%	75.25%	+0.35	59.63%	63.49%	+3.86
Apartment	8.51%	9.68%	+1.17	10.88%	10.96%	+0.08	14.39%	11.70%	-2.69
Attached	7.15%	7.61%	+0.46	8.10%	8.17%	+0.07	7.09%	8.63%	+1.54
Mobile/Movable	3.41%	3.02%	-0.39	3.53%	3.62%	+0.09	2.92%	2.78%	-0.14
Collective	0.86%	0.77%	-0.09	2.58%	2.01%	-0.57	15.98%	13.40%	-2.58

Source: Statistics Canada, 1991 Census of Canada. Public Use Microdata File, Household and Housing File, 1993.
Statistics Canada, 1996 Census of Canada. Public Use Microdata File, Household and Housing File, 1999
Statistics Canada, The Nation cat. 93-311. Table 2 (p.30-31).
Statistics Canada (1999), The Nations Series. Complete Edition. Cat. 93F0020XCB96004.

Table 17: Change in Percentage Distribution of Female Household Maintainers by Dwelling Type and Age Group in Alberta, 1991 and 1996.

	55-64			65-74			75+		
Dwelling Type	1991	1996	Change 91-96	1991	1996	Change 91-96	1991	1996	Change 91-96
Single Detached	56.15%	55.95%	-0.20	52.46%	55.32%	+2.86	35.13%	35.20%	+0.07
Apartment	24.01%	20.58%	-3.43	27.50%	25.78%	-1.72	27.67%	29.54%	+1.87
Attached	14.46%	17.85%	+3.39	11.36%	12.38%	+1.02	5.81%	6.43%	+0.62
Mobile/Movable	3.23%	4.09%	+0.86	3.29%	2.33%	-0.96	1.21%	2.14%	+0.93
Collective	2.15 %	1.52%	+0.63	5.38%	4.19%	-1.19	30.16%	26.70%	-3.46

Source: Statistics Canada, 1991 Census of Canada, Public Use Microdata File, Household and Housing File, 1993.
Statistics Canada, 1996 Census of Canada, Public Use Microdata File, Household and Housing File, 1999
Statistics Canada, The Nation cat. 93-311, Table 2 (p.30-31).
Statistics Canada (1999), The Nations Series, Complete Edition, Cat. 93F0020XCB96004.

Comparing the 1991 and 1996 percentage distributions of household maintainers by sex, the 5 year difference does not significantly effect the utilization of dwellings according to age. For males, the largest difference between the 1991 and 1996 distribution is an increase of 3.86% utilization for the 75+ year old males in single detached houses. For females, the largest difference between the 1991 and 1996 distribution was a 3.46% decrease in collective dwelling utilization. This suggests that the distribution by household type will fluctuate between the 2016 projection period. With the largest difference between the 1991 and 1996 periods being approximately 4% the assumption that the distribution will be relatively stable on the 1991- 2016 and the 1996-2016 projection period is justifiable. The clarification of the possible variation in the distribution of the household maintainers in 2016 maintains the likelihood of some statistical deviation in the data. The use of 1991 and 1996 data is the most current and representative data of Alberta's senior housing situation.

Comparing data from 1991 and 1996 and those from previous years have variations in housing type and the prevalence of certain dwellings. These differences between the years of analysis reduce comparability. However, utilizing the same variables in 1991 as 1996, which contain the same categories and are defined the same as increases the comparability of the data. As one looks to the future (2016) the most recent data available (the 1991 and 1996 PUMFs) best project the housing utilization of Alberta's seniors.

The rates of change according to the 1996 data are 2.38, 2.01, 2.04 for males in the age groups 55-64, 65-74 and 75+ respectably. For females, the rates of change are 2.40, 1.86 and 1.72 for the same age groups. To calculate the total male householders in single detached houses in the age group 55-6, 68652 is multiplied by 2.38 (68652x2.38=163108).

Table 18: Expected Male Household Maintainers by Dwelling Type and Age Group in Alberta, 2016

Dwelling Type	55-64	65-74	75+	Total
Single Detached	163,108	99,371	48,540	311,018
Apartment	20,014	14,475	8,945	43,435
Attached	15,738	10,784	6,599	33,121
Mobile/ Movable	6,244	4,777	2,126	13,147
Collective	1,592	2,654	10,245	14,490
2016 Total	206,695	132,060	76,455	415,211

Source: Statistics Canada, 1996 Census of Canada. Public Use Microdata File, Household and Housing File, 1999.

Statistics Canada (1999), The Nations Series. Complete Edition. Cat. 93F0020XCB96004.

Table 19: Expected Female Household Maintainers by Dwelling Type and Age Group in Alberta, 2016.

Dwelling Type	55-64	65-74	75+	Total
Single Detached	42,478	36,591	28,555	107,624
Apartment	15,627	17,053	23,962	56,642
Attached	13,555	8,191	5,214	26,960
Mobile/ Movable	3,108	1,544	1,738	6,391
Collective	1,151	2,770	2,1658	25,579
2016 Total	75,919	66,149	81,128	22,3196

Source: Statistics Canada, 1996 Census of Canada. Public Use Microdata File, Household and Housing File, 1999.

Statistics Canada (1999), The Nations Series. Complete Edition. Cat. 93F0020XCB96004.

Table 20: Expected Total Household Maintainers by Dwelling Type and Age Group in Alberta, 2016.

Dwelling Type	Both Sexes 55-64	Both Sexes 65-74	Both Sexes 75+	Total
Single Detached	205,586	135,962	77,095	418,643
Apartment	35,641	31,528	32,907	100,077
Attached	29,293	18,975	11,814	60,081
Mobile/ Movable	9,352	6,321	3,865	19,537
Collective	2,743	5,423	31,903	29,824
2016 Total	282,615	198,210	157,583	638,407

Source: Statistics Canada, 1996 Census of Canada. Public Use Microdata File, Household and Housing File, 1999.

Statistics Canada (1999), The Nations Series. Complete Edition. Cat. 93F0020XCB96004.

Table 21: Expected Total Household Maintainers by Dwelling Type and Age Group Based on 1991 and 1996 Rates of Change in Alberta, 2016.

Dwelling Type	55-64		65-74		75+		Total	
	1991	1996	1991	1996	1991	1996	1991	1996
Single Detached	199,441	205,586	134,118	135,962	72,155	77,095	405,714	418,643
Apartment	33,170	35,641	32,352	31,528	32,557	32,907	98,079	100,077
Attached	24,082	29,293	18,191	18,975	9,869	11,814	52,141	60,081
Mobile/ Movable	9,052	9,352	6,852	6,321	3,133	3,865	19,037	19,537
Collective	3,162	2,743	6,933	5,423	35,711	31,903	45,806	29,824
2016 Total	268,907	282,615	198,446	198,210	153,424	157,583	620,777	638,407

Source: Statistics Canada, 1991 Census of Canada. Public Use Microdata File, Household and Housing File, 1993.
Statistics Canada, 1996 Census of Canada. Public Use Microdata File, Household and Housing File, 1999
Statistics Canada, The Nation cat. 93-311. Table 2 (p.30-31).
Statistics Canada (1999), The Nations Series. Complete Edition. Cat. 93F0020XCB96004.

Using the 1996 utilization rates, household maintainers tend to live in single detached houses. Compared to the 1991 expected household maintainers, using the 1996 rates distributes a greater percentage of the population in single detached houses. Similarly, fewer household maintainers reside in collective dwellings when using the 1996 rates. Overall, more of Alberta's senior population will reside in, or continue to reside in, single detached houses and apartments.

The following tables, table 22 through table 33, utilize the non-household maintainer variable from the 1991 PUMF. These tables describe the household maintainers within the sample linking their dwelling type according to marital status and the number of non-household maintainers.

Table 22: Non-Household Maintainers who reside with Married Male Household Maintainers, Alberta, 1991.

	Household maintainers					
	55-64 (n=1,408)		65-74 (n=933)		75+ (n=365)	
Non-household maintainers	M	F	M	F	M	F
<5	26		7		1	
5-17	89	80	20	22	---	2
18-24	240	185	25	17	4	1
25-59	959	1,189	100	176	24	16
60-64	676	256	1	271	3	20
65-74	1	76	938	503	1	163
75+	3	13	1	44	368	168
TOTAL	3,793		2,080		771	

Source: Statistics Canada, 1991 Census of Canada, Public Use Microdata File, Household and Housing File, 1993.

Table 23: Non-Household Maintainers who reside with Widowed Male Household Maintainers, Alberta, 1991.

	Household maintainers					
	55-64 (n=52)		65-74 (n=80)		75+ (n=109)	
Non-household maintainers	M	F	M	F	M	F
<5	---		1		1	
5-17	1	---	2	1	2	1
18-24	3	2	4	---	---	2
25-59	28	9	10	6	---	5
60-64	31	1	---	1	1	---
65-74	1	1	80	2	---	---
75+	---	---	---	1	109	1
TOTAL	77		108		122	

Source: Statistics Canada, 1991 Census of Canada, Public Use Microdata File, Household and Housing File, 1993.

Tables 20 and 21 outline the non-household maintainers who reside with married and widowed household maintainers. Notably, the number of non-household maintainers linked with married male household maintainers is more than with widowed male.

Table 24: Non-Household Maintainers who reside with Married Female Household Maintainers, Alberta, 1991.

	Household maintainers					
	55-64 (n=117)		65-74 (n=68)		75+ (n=27)	
Non-household maintainers	M	F	M	F	M	F
<5	2		---		---	
5-17	6	8	1	1	---	---
18-24	15	5	1	1	---	---
25-59	58	77	9	3	1	---
60-64	47	49	4	---	---	---
65-74	24	---	36	68	3	1
75+	2	1	16	---	14	27
TOTAL	294		140		46	

Source: Statistics Canada, 1991 Census of Canada, Public Use Microdata File, Household and Housing File, 1993.

Table 25: Non-Household Maintainers who reside with Widowed Female Household Maintainers, Alberta, 1991.

	Household maintainers					
	55-64 (n=212)		65-74 (n=448)		75+ (n=493)	
Non-household maintainers	M	F	M	F	M	F
<5	3		5		---	
5-17	5	2	5	7	4	4
18-24	21	14	11	4	9	3
25-59	48	98	55	34	32	20
60-64	3	138	4	2	3	3
65-74	1	---	2	449	1	---
75+	---	6	2	3	1	495
TOTAL	339		583		575	

Source: Statistics Canada, 1991 Census of Canada, Public Use Microdata File, Household and Housing File, 1993.

Elderly females tend to have fewer non-household maintainers living within the dwelling as males of the same category.

Table 26: Non-Household Maintainers Who Reside With Married Male Household Maintainers in Single Detached Houses, Alberta, 1991.

	Household maintainers					
	55-64 (n=1184)		65-74 (n=721)		75+ (n=255)	
Non-household maintainers	M	F	M	F	M	F
<5	20		6		---	
5-17	77	71	15	11	---	2
18-24	212	164	20	15	3	---
25-59	822	1,018	82	138	21	10
60-64	563	210	---	219	3	15
65-74	---	58	726	382	---	119
75+	3	12	1	37	258	115
TOTAL	3,230		1,652		546	

Source: Statistics Canada, 1991 Census of Canada, Public Use Microdata File, Household and Housing File, 1993.

Table 27: Non-Household Maintainers Who Reside With Married Male Household Maintainers in Apartments, Alberta, 1991.

	Household maintainers					
	55-64 (n=86)		65-74 (n=93)		75+ (n=59)	
Non-household maintainers	M	F	M	F	M	F
<5	3		---		---	
5-17	5	2	1	7	---	---
18-24	6	3	---	1	1	1
25-59	51	55	5	15	1	3
60-64	44	22	1	17	---	2
65-74	1	8	93	56	---	21
75+	---	1	---	4	59	30
TOTAL	201		200		118	

Source: Statistics Canada, 1991 Census of Canada, Public Use Microdata File, Household and Housing File, 1993.

As dwellings tend to be more spacious, male household maintainers are able to share their dwelling more easily than males in apartments.

Table 28: Non-Household Maintainers Who Reside With Widowed Male Household Maintainers in Single Detached Houses, Alberta, 1991.

	Household maintainers					
	55-64 (n=28)		65-74 (n=49)		75+ (n=59)	
Non-household maintainers	M	F	M	F	M	F
<5	---		1		1	
5-17	---	---	1	1	1	---
18-24	2	2	4	---	---	1
25-59	15	5	7	1	3	4
60-64	19	---	---	1	1	---
65-74	1	1	49	2	---	---
75+	---	---	---	1	59	---
TOTAL	45		68		70	

Source: Statistics Canada, 1991 Census of Canada, Public Use Microdata File, Household and Housing File, 1993.

Table 29: Non-Household Maintainers Who Reside With Widowed Male Household Maintainers in Apartments, Alberta, 1991.

	Household maintainers					
	55-64 (n=15)		65-74 (n=20)		75+ (n=38)	
Non-household maintainers	M	F	M	F	M	F
<5	---		---		1	
5-17	---	---	---	---	1	1
18-24	---	---	---	---	---	---
25-59	7	2	1	---	---	---
60-64	9	---	---	---	---	---
65-74	---	---	20	---	---	---
75+	---	---	---	---	38	1
TOTAL	18		21		41	

Source: Statistics Canada, 1991 Census of Canada, Public Use Microdata File, Household and Housing File, 1993.

Widowed males in apartments tend to live alone without the company of other individuals.

Table 30: Non-Household Maintainers Who Reside With Married Female Household Maintainers in Single Detached Houses, Alberta, 1991.

	Household maintainers					
	55-64 (n=92)		65-74 (n=45)		75+ (n=14)	
Non-household maintainers	M	F	M	F	M	F
<5	2		---		---	
5-17	5	8	1	1	---	---
18-24	12	5	---	1	---	---
25-59	49	67	6	1	1	---
60-64	38	33	2	---	1	---
65-74	17	---	25	45	1	---
75+	2	1	13	---	8	14
TOTAL	239		95		25	

Source: Statistics Canada, 1991 Census of Canada, Public Use Microdata File, Household and Housing File, 1993.

Table 31: Non-Household Maintainers Who Reside With Married Female Household Maintainers in Apartments, Alberta, 1991.

	Household maintainers					
	55-64 (n=10)		65-74 (n=11)		75+ (n=8)	
Non-household maintainers	M	F	M	F	M	F
<5	---		---			
5-17	---	---	---	---	---	---
18-24	---	---	---	---	---	---
25-59	3	5	---	---	---	---
60-64	3	6	---	---	---	---
65-74	4	---	6	11	---	1
75+	---	---	1	---	3	8
TOTAL	21		18		12	

Source: Statistics Canada, 1991 Census of Canada, Public Use Microdata File, Household and Housing File, 1993.

Females tend to lose their companionship of non-household maintainers as they age. In the 55-64 age group more non-household maintainers reside with the female household maintainer than when the household maintainer is 75+ years of age.

Table 32: Non-Household Maintainers Who Reside With Widowed Female Household Maintainers in Single Detached Houses, Alberta, 1991.

	Household maintainers					
	55-64 (n=130)		65-74 (n=229)		75+ (n=226)	
Non-household maintainers	M	F	M	F	M	F
<5	1		---		4	
5-17	3	---	3	3	4	4
18-24	11	13	9	3	8	3
25-59	36	64	46	26	22	16
60-64	2	82	4	2	2	1
65-74	1	---	2	230	1	---
75+	---	5	1	3	1	227
TOTAL	218		334		289	

Source: Statistics Canada, 1991 Census of Canada, Public Use Microdata File, Household and Housing File, 1993.

Table 33: Non-Household Maintainers Who Reside With Widowed Female Household Maintainers in Apartments, Alberta, 1991.

	Household maintainers					
	55-64 (n=46)		65-74 (n=152)		75+ (n=226)	
Non-household maintainers	M	F	M	F	M	F
<5	1		---		---	
5-17	---	1	1	2	---	---
18-24	1	---	---	---	1	---
25-59	7	21	4	4	4	3
60-64	1	30	---	---	---	---
65-74	---	---	---	152	---	---
75+	---	---	---	---	---	227
TOTAL	62		163		235	

Source: Statistics Canada, 1991 Census of Canada, Public Use Microdata File, Household and Housing File, 1993.

Household maintainers often share their residence with a non-household maintainer. Depending on the age and marital status of the household maintainer, the likelihood of sharing accommodations varies. Generally, Tables 20 through 31 display the entire household composition rather than the household as identified solely by the household maintainer. The sex and the marital status of the household maintainer effects the number of cohabiters in the dwelling. Married males, particularly those in single detached dwellings, tend to have more non-household maintainers residing in the dwelling. Widowed females, particularly in single-detached dwellings, have a greater tendency in sharing their dwelling.

Household composition varies with the household maintainers age, marital status and the type of dwelling in which they reside. The ages of the household maintainers differ greatly from dwelling type. In fact, tables 20-31 display the diversity and complexity of household composition.

5.0 Conclusion

Preparing for the increasing number of elderly individuals in Alberta will ease the transition of housing an aged population. The need for adequate support for elderly household maintainers in various types of dwellings will be necessary. As the number of elderly individuals will continue to increase in Alberta's population to 2016 and for some time after, the number of household maintainers who live in the various types of dwellings will also increase.

Collective dwelling utilization increases with age. Although, the utilization rates of collective dwellings decreased slightly between the 1991 and 1996, the number of individuals in collective dwellings continued to increase. With the projected utilization, the development and locations of collective dwellings suitable for the elderly population must be planned in advance to meet future elderly housing needs. Issues related to collective dwellings such as the number of appropriately trained staff, government subsidies, etc., will need to be addressed. Gradual construction of collective dwellings between now and the projected year will prepare Alberta for the future demand for this dwelling type. Locating collective dwellings in particular geographic areas will be fundamental in satisfying the entire provincial elderly population's needs. Delaying construction of collective dwellings until a greater need is present will result in a lack of preparedness of housing a portion of the population dependent on collective dwellings.

Although the research did not focus on specific geographic locations in Alberta, one could assume that geography does affect elderly housing. Alberta's two largest Census Metropolitan Areas (CMAs), Edmonton and Calgary, will tend to display different utilization of certain housing types than rural Alberta areas. Particularly in the

urban areas, apartments and collective dwellings are more numerous whereas, in the rural area single detached houses would be more prevalent. Developmental strategies to assist the rural elderly who age in their own houses will be necessary. These rural elderly individuals will require assistance just as urban elderly do and their needs, although similar to urban elderly, may require different response due to their geography.

According to the utilization rates, apartment buildings will also continue to house an increasing number of elderly Albertans. The independence that apartments offer is an important factor. In constructing apartments for the elderly population, the buildings themselves must be appropriately constructed to meet the unique needs of elderly individuals. Architectural designs of dwellings used by the elderly population greatly affect the ease of daily living (height of cabinets, material used on floors, size of door knobs, etc.). Locations of apartment complexes with amenities in the vicinity of the building (physicians, dentists, malls, bus routes, hair stylists, etc.) will be vital to the success of such apartments.

The research technique and the numbers generated in the thesis have the potential to influence policy. For example, as the majority of elderly individuals reside in single detached houses, subsidies or grants for home repair would allow the elderly individual to remain in his or her house. Although policy regarding elderly housing has separate public and private dimensions, nevertheless, the separate dimensions are interconnected. The government has a responsibility for certain guarantees of living conditions of its citizens. Upgrading older houses with either public or private dollars or both inherently improves the quality of housing in which the elderly population resides

Using the PUMF from the 1991 and 1996 censuses as the primary source of data for this research limited the analysis. As the unit of analysis was household maintainers, the complete household composition was not represented accurately. Defining a household by the household maintainer neglects the dynamics of dwellings and the unique behaviours of individuals as they reside in certain types of dwellings. A female who is classified as a non-household maintainer because she is the spouse of a male household maintainer only becomes classified as a household maintainer when she becomes a widow. This explains the larger number of females in the household maintainer age group 75+ compared to the 55-64 or the 65-74 age groups.

To assess household utilization using a different methodology, a more specific data source is necessary. For example, instead of analyzing the household maintainer, the unit of analysis could be directed toward the individual level. At an individual level, each individual could be categorized according to dwelling type and every individual in the household would be accounted for. However, this approach would overestimate the number of housing units needed as two or more individuals often share accommodations.

The age groupings of the individuals limit the research. With broad age groups, the generalizations about the “elderly” are problematic. The experiences of a healthy 75-year-old and a frail 100-year-old individual are not comparable. Yet, an all-inclusive 75+ year old age grouping places these individuals together. Nevertheless, there is some utility in projecting housing needs by age groups (55-64, 65-74, 75+) as the individuals often do not share the same housing experiences. As the Alberta population continues to age, more individuals are reaching older ages. The private sector has developed multilevel assisted living complexes where elderly individuals move through dwelling

types as their needs change. For example, a healthy individual resides in a detached house but as their needs change and they require more assistance, they move to an apartment that contains the assisted living lifestyle. The ability of the elderly individual to reside in a single detached house is extended by his or her health, support network, etc. and this increasing emphasis on home care helps individuals maintain their independence by living at home. If the data were more specific with regards to the individual's age, analyzing cohort influences would also be possible.

Even with the obvious limitations of the (PUMF) data, the variables and the methodology do provide insight into the projected Alberta's seniors housing situation. The data is periodic and contains similar variables for 1991 and 1996. As the data is compiled from census questionnaires, the sample is representative of the elderly population. The accessibility of the data from Statistics Canada in the form of Public Use Microdata Files allows this research to be addressed in an innovative way, as envisioned by the researcher. The expected number of household maintainers estimated according to the rates of change are plausible projections of the distribution of seniors according to dwelling type, age and sex of the household maintainer. There is a need to address seniors housing in Alberta as the population will continue to age and the needs of the population will change. It is important for policy to be addressed in order to alleviate any problems related to the aging situation before it happens.

Although, the percentage distribution of the household maintainers does not differ significantly for either sex between 1991 and 1996, the particular distribution does affect the overall number of projected 2016 dwellings. Similarly, the rates of change for 1991-2016 and 1996-2016 differ because of the 5 year difference between the base population

(1991 and 1996). As individuals continue to progress through the life cycle, changes to the population of the elderly cohort occur. The older population continues to get older and more of the population joins the elderly group. Incorporating demographic variables in the methodology of this thesis allows projections of housing types for seniors. Each year as we near the projected population, the distribution of seniors in the appropriate dwelling types will indicate if the projections are accurate and indicative of the Alberta population's housing experience. The projected population calculates the future population according to trends that describe the population.

This thesis is an exercise in applied demography. Applied demography enables demographic research to focus on specific areas of policy concern such as elderly housing demand. Housing of the population is important but it is a complex area to research as many factors play important roles (age, sex, marital status, dwelling type etc.) in dwelling utilization. The results must be used with caution. Demographic variables and techniques allow research on elderly housing to focus on the selected population quantitatively. Other variables such as economics, for example, influence the utilization of dwellings. With multidisciplinary approaches (gerontology, urban sociology, public health etc.), the numerous other factors are highlighted.

Further research on elderly housing utilization in Alberta is needed to address the future needs of this growing population group. Other variables such as the age of the dwelling and the life course of the neighbourhood in which the dwelling is located are instrumental in the analysis of elderly housing. This exercise displayed an in depth analysis of Alberta's household maintainers, according to dwelling type. The

demographic data are important, as they are the fundamental basis for research needed in the area of elderly housing.

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Appendices

Appendix A

Definitions of Dwelling Types Important in the Analysis of Elderly Housing:

Source: Statistics Canada (1992) **1991 Census Dictionary** Reference. Minister of Industry, Science and Technology, 1992. January. Ottawa, Canada. Cat. 92-301E.

The same definitions apply to the 1996 Public Use Micro File Data.

PRIVATE DWELLINGS (p. 164-165):

Single Detached House- “A single detached dwelling not attached to any other dwelling or structure (except its own garage or shed). A single detached house has open space on all sides, and has no dwelling either above or below it”.

Attached House: For research purposes in this thesis: semi-detached houses, row houses, apartment in a detached duplex and other single attached houses were combined in this category. However, each will be defined separately here.

Semi-Detached House- “One of two dwellings attached side by side (or back to front) to each other, but not to any other dwelling or structure (except its own garage or shed). A semi-detached dwelling has no dwellings either above it or below it and the two units

together have open spaces on all sides. *Row House-* “One of three or more dwellings joined side by side (or occasionally side to back), such as a town house or garden home, but not having any other dwelling either above or below”. *Apartment or flat in a*

detached duplex- “One of two dwellings, located one above the other, but not attached to any other dwelling or structure (except its own garage or shed). The two units together have no other dwellings attached to the back, front or sides, and have no open space on all sides”. *Other Single Attached Dwelling-* “A single dwelling that is attached to another

building and that does not fall into any of the other categories. Examples are a single dwelling attached to a non-residential structure (e.g., store or church) or occasionally to another residential structure (e.g., apartment building)”.

Apartment: The various types of apartment dwellings Apartment In A Building That Has Five Or More Storeys and Apartment In A Building That Has Fewer Than Five Storeys were collapsed into one category. The separate definitions follow. *Apartment In A Building That Has Five Or More Storeys*- “ A dwelling unit in a high rise building which has five or more storeys”. *Apartment In A Building That Has Fewer Than Five Storeys*- “ A dwelling unit attached to other dwelling units, commercial units, or other non-residential space in a building that has fewer than five storeys”.

Mobile/ Movable: The mobile / movable category is comprised of the mobile home category and the other movable dwelling category. *Mobile Home*- “A single dwelling, designed and constructed to be transported on its own chassis, and capable of being moved on short notice. It may be placed on a temporary foundation such as blocks, posts or prepared pad”. *Other Movable Dwelling*- “A single dwelling, other than a mobile home, used as a place of residence, but capable of being moved on short notice, such as a tent, recreational vehicle, travel trailer or houseboat”.

COLLECTIVE DWELLINGS (p. 156-158):

A collective dwelling “refers to a dwelling of a commercial, institutional or communal nature. It may be identified by a sign on the premises or by a census representative speaking with the person in charge or with a resident or a neighbour, etc. Included are

rooming- or lodging –houses, hotels, motels, tourist homes, nursing homes, hospitals, staff residences, communal quarters of military camps, work camps, jails, missions, group homes, and so on. Collective dwellings may be occupied by usual residents or solely by foreign and/or temporary residents”.

For a complete listing of the collective dwellings with the appropriate definitions, see the Statistics Canada source. The collective dwellings deemed most important to elderly housing are defined bellow.

Chronic Care Hospitals- “ Chronic care hospitals provide continuous medical, nursing and professional health care supervision for long-term patients who are dependent in all activities of daily living and are unable to perform most or all personal tasks”.

Nursing Homes- “ Nursing homes are long term care facilities which provide moderate assistance and periodic to regular nursing supervision for elderly residents”.

Residences for Senior Citizens- “ Residences for senior citizens provide minimal assistance and supervision for elderly residents who are independent in most activities of daily living”.

Hospitals- “An institution providing medical or surgical diagnosis and treatment to the ill or injured. Included are general hospitals, hospitals for children, maternity hospitals, etc.”.

Table A1: Population of Alberta, 1991

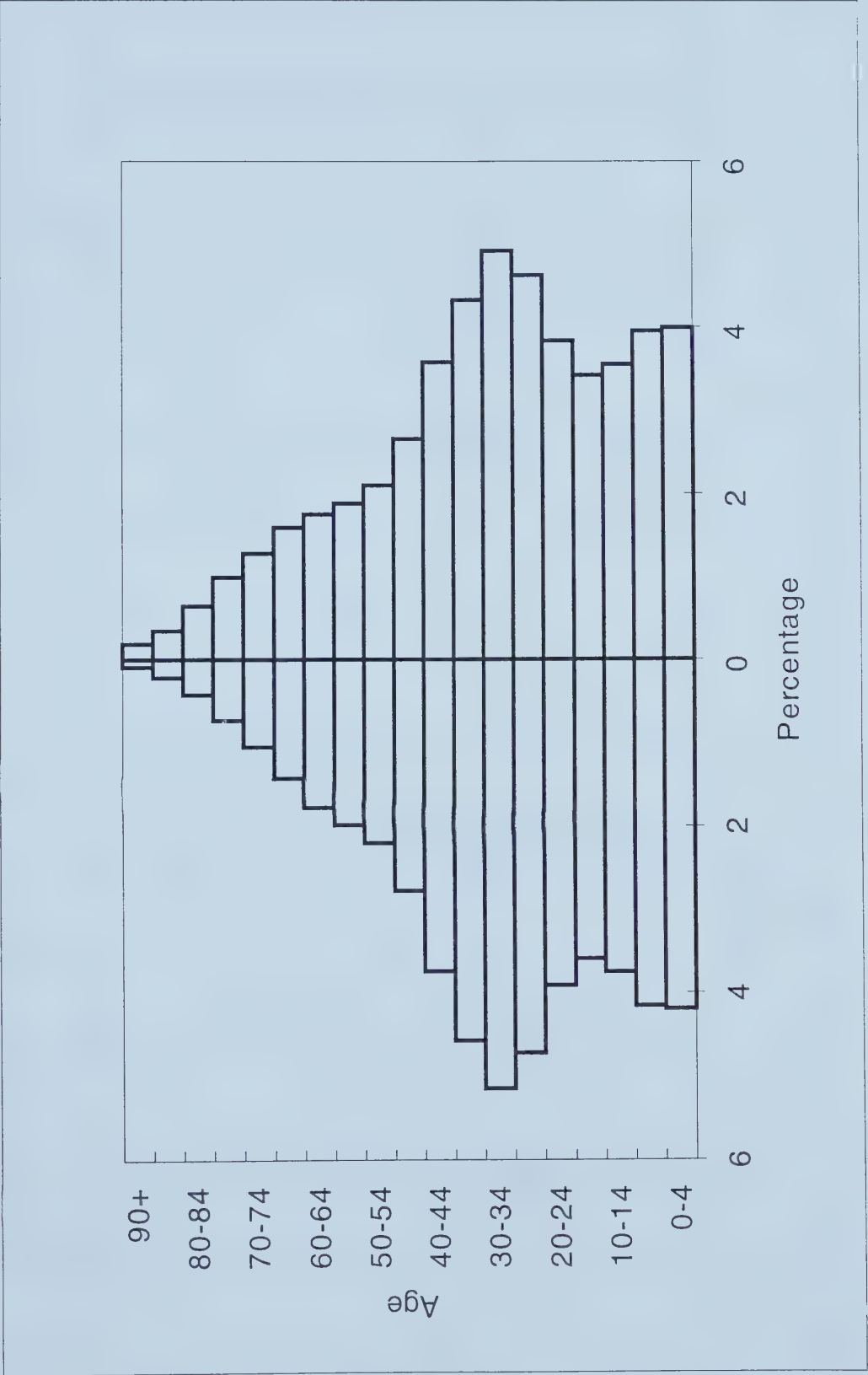
Age Group	Males	Females
0-4	108,802	103,331
5-9	107,722	102,288
10-14	97,205	91,859
15-19	93,033	88,513
20-24	101,394	99,241
25-29	122,444	119,917
30-34	133,476	127,426
35-39	118,629	112,012
40-44	96,890	92,676
45-49	71,696	68,691
50-54	56,840	54,376
55-59	51,150	48,801
60-64	45,926	45,348
65-69	36,873	41,342
70-74	27,202	33,318
75-79	18,820	25,795
80-84	10,993	16,818
85-89	5,427	9,195
90+	2,179	4,903
Total	1,306,701	1,285,850
	2,592,551	

Source: Statistics Canada 1991 CANSIM Matrix 6376.
<http://data.lib.ualberta.ca>

Table A2: Percentage Distribution by 5-Year Age Groups, Alberta, 1991

Age Group	Males	Females
0-4	4.20	3.99
5-9	4.16	3.95
10-14	3.75	3.54
15-19	3.59	3.41
20-24	3.91	3.83
25-29	4.72	4.63
30-34	5.15	4.92
35-39	4.58	4.32
40-44	3.74	3.57
45-49	2.77	2.65
50-54	2.19	2.10
55-59	1.97	1.88
60-64	1.77	1.75
65-69	1.42	1.59
70-74	1.05	1.29
75-79	0.73	0.99
80-84	0.42	0.65
85-89	0.21	0.35
90+	0.08	0.19

Figure A1: Age and Sex Composition of Alberta: 1991



Source: Statistics Canada 1991 CANSIM Matrix 6376. <http://data1ib.ualberta.ca>.

Table A3: Population of Alberta, 1996

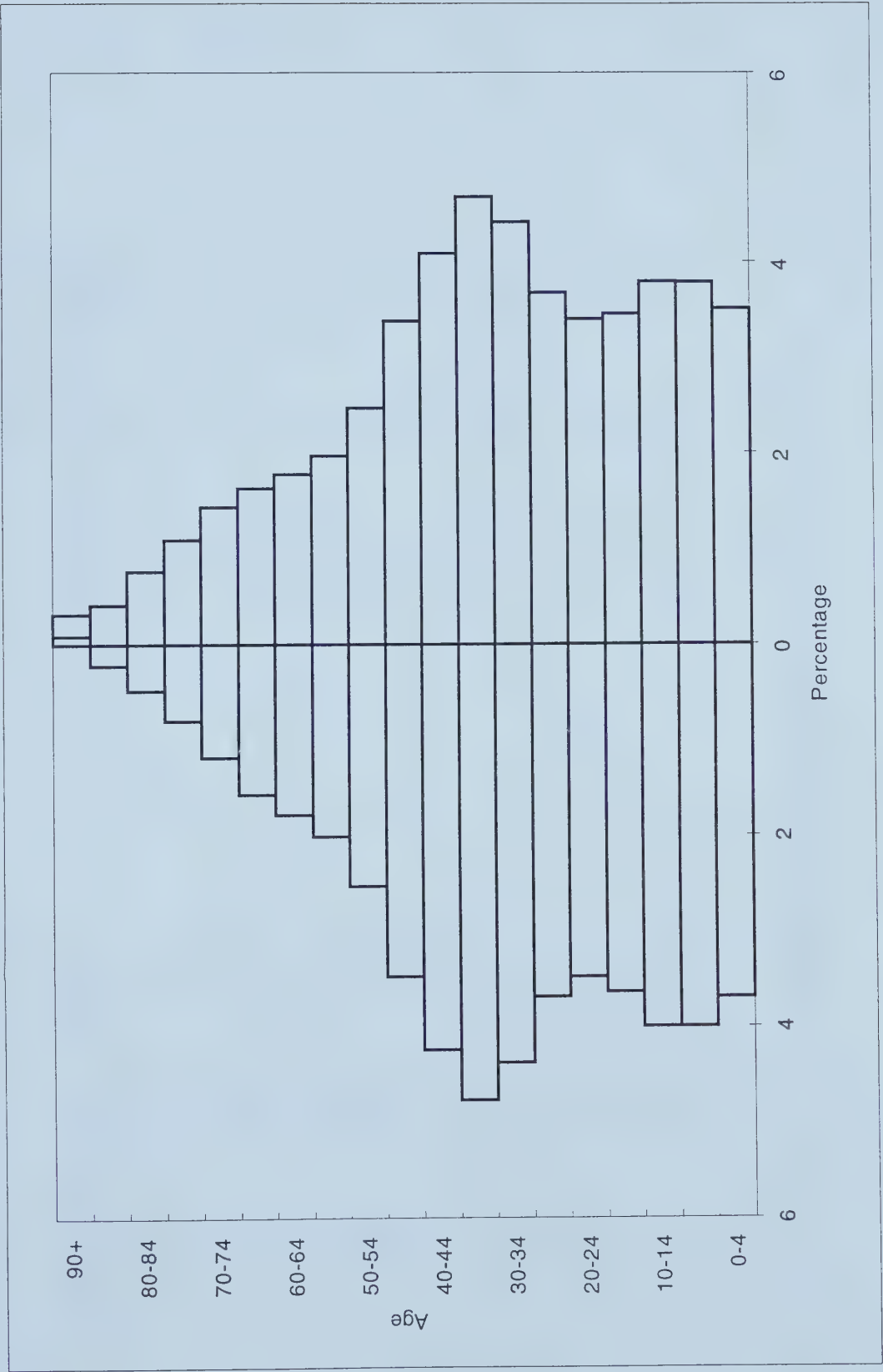
Age Group	Males	Females
0-4	99,530	947,05
5-9	107,870	102,265
10-14	107,720	102,395
15-19	98,185	93,255
20-24	93,775	91,730
25-29	99,460	99,295
30-34	118,015	119,295
35-39	128,525	126,445
40-44	114,440	110,385
45-49	93,705	91,210
50-54	68,210	66,545
55-59	54,055	53,065
60-64	47,990	47,845
65-69	42,205	43,870
70-74	31,810	38,665
75-79	21,485	29,435
80-84	12,925	20,680
85-89	5,885	11,295
90+	2,515	6,135
Total	1,348,305	1,348,515
		2,696,820

Table A4: Percentage Distribution by 5-Year Age Groups, Alberta, 1996

Age Group	Males	Females
0-4	3.69	3.51
5-9	4.00	3.79
10-14	3.99	3.80
15-19	3.64	3.46
20-24	3.48	3.40
25-29	3.69	3.68
30-34	4.38	4.42
35-39	4.77	4.69
40-44	4.24	4.09
45-49	3.47	3.38
50-54	2.53	2.47
55-59	2.00	1.97
60-64	1.78	1.77
65-69	1.56	1.63
70-74	1.18	1.43
75-79	0.80	1.09
80-84	0.48	0.77
85-89	0.22	0.42
90+	0.09	0.23

Source: Statistics Canada 1996 Data. <http://datalib.library.ualberta.ca/data/census/1996/nation/demographics.html>

Figure A2: Age and Sex Composition of Alberta, 1996.



Source: Statistics Canada 1996 Data. <http://datalib.library.ualberta.ca/data/census/1996/nation/demographics.html>

Table A5: Population of Alberta, 2016

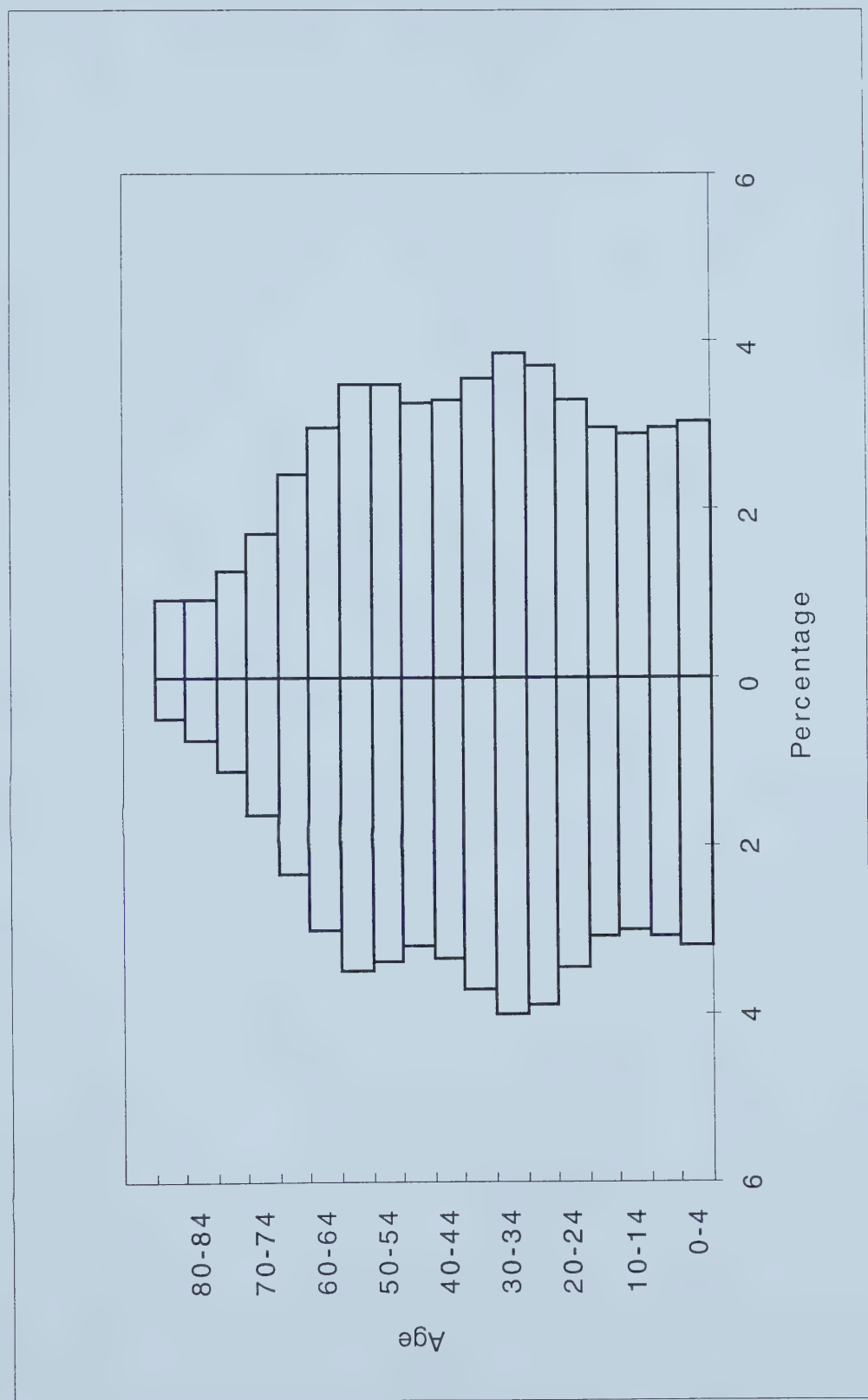
Age Group	Males	Females
0-4	119,892	114,230
5-9	115,818	110,556
10-14	112,577	107,669
15-19	115,676	110,846
20-24	128,854	123,795
25-29	145,108	139,111
30-34	150,385	144,153
35-39	138,250	132,654
40-44	125,027	124,067
45-49	119,820	121,567
50-54	126,501	130,692
55-59	130,696	131,061
60-64	111,749	110,947
65-69	87,848	89,900
70-74	60,953	64,027
75-79	41,493	47,067
80-84	27,284	34,516
85+	18,416	34,889
Total	1,876,347	1,871,747
	3,748,094	

Table A6: Percentage Distribution by 5-Year Age Groups, Alberta, 2016

Age Group	Males	Females
0-4	3.20	3.05
5-9	3.09	2.95
10-14	3.00	2.87
15-19	3.09	2.96
20-24	3.44	3.30
25-29	3.87	3.71
30-34	4.01	3.85
35-39	3.69	3.54
40-44	3.34	3.31
45-49	3.20	3.24
50-54	3.38	3.49
55-59	3.49	3.50
60-64	2.98	2.96
65-69	2.34	2.40
70-74	1.63	1.71
75-79	1.11	1.26
80-84	0.73	0.92
85+	0.49	0.93

Source: Alberta Health (1998) Population Projections for Alberta and its Health Regions 1996-2016. Health Surveillance. April. Edmonton, Alberta.

Figure A3: Projected Age and Sex Composition of Alberta, 2016



Source: Alberta Health (1998) Population Projections for Alberta and its Health Regions 1996-2016. Health Surveillance. April. Edmonton, Alberta.

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